INSIDE THIS WEEK: TECHNOLOGY QUARTERLY

The Economist

JUNE 10TH–16TH 2006 www.economist.com

Air travel: the next green battleground

A world without nuclear weapons

In praise of the World Cup

Toronto's terror plot

Is your house overvalued?

Iraq after Zarqawi

ONLINE FEATURES

Cities Guide Go
Country Briefings Go
Audio interviews Go
Classifieds Go

PRINT EDITION

Full contents
Enlarge current cover
Past issues/regional covers

GLOBAL AGENDA

POLITICS THIS WEEK

BUSINESS THIS WEEK

OPINION
Leaders
Letters

WORLD
United States
The Americas
Asia
Middle East & Africa
Europe
Britain
Country Briefings
Cities Guide

SURVEYS

BUSINESS
Management Reading
Business Education
Executive Dialogue

FINANCE & ECONOMICS
Economics Focus
Economics A-Z

SCIENCE & TECHNOLOGY
Technology Quarterly

PEOPLE
Obituary

BOOKS & ARTS
Style Guide

MARKETS & DATA
Weekly Indicators
Currencies
Big Mac Index

DIVERSIONS

RESEARCH TOOLS

CLASSIFIEDS

DELIVERY OPTIONS
E-mail Newsletters
Mobile Edition
RSS Feeds

The Economist Group
Economist Intelligence Unit
Economist Conferences
The World In
Intelligent Life
CFO
Roll Call
European Voice
EuroFinance Conferences
Economist Diaries and Business Gifts

Advertisement

Print Edition June 10th 2006

On the cover
Abu Musab al-Zarqawi's death is a stunning reversal to the world jihad, but the insurgency in Iraq will continue: leader

Previous print editions
Jun 3rd 2006
May 27th 2006
May 20th 2006
May 13th 2006
May 6th 2006
More print editions and covers »

Subscribe
Subscribe to the print edition
Or buy a Web subscription for full access online
RSS feeds
Receive this page by RSS feed

The world this week

Politics this week
Business this week

Leaders

Iraq
After Zarqawi E

Aircraft emissions
The dirty sky E

Sport and politics
Let the games begin

Nuclear disarmament
The fewer the better E

Futurology
The rights and wrongs of science fiction E

Letters

On the United Nations and guns, Niall Ferguson, Poland, Scotland

Special Report

Nuclear disarmament
The long, long half-life

United States

Death and taxes
Gilding the elite E

The primary season
Reading the tea-leaves

South Carolina
Sub-standard E

The Golden Gate Bridge
Deadly beauty E

New York pets
Dog days E

Private forests
Et in Suncadia ego E

The National Spelling Bee
Struggling towards Ursprache E

Lexington
The odd man out E

The Americas

The Toronto terror plot
The plan to behead the prime minister

Venezuela's foreign policy
Bruised but unbowed E

Peru
Alan García's second chance E

Mexico's presidential election
A tie not broken E

Asia

Afghanistan
The Taliban resurgent

China and America
Out of their silos E

Fuel prices in India
Battle on E

Love and marriage in Japan
White weddings

Central Asia

Technology Quarterly

Science fiction and reality
On the move at last? E
Waiting for the space elevator E
Sounds good? E
When looks are no longer enough E
Brainpower under the bonnet E
Artificial artificial intelligence E
Making waves E
The cult of the wireless rabbit E
Invisible mending E
Reprogram your life E
Bluetooth's quiet success E
Trust me, I'm a robot
How to build a Babel fish E
The power of positrons E
The march of technology E
Plugging into the future E
Present at the creation E
Offer to readers

Business

Companies and climate change
Can business be cool?

Business in Japan
Moving in on Murakami E

Pharmaceuticals
Nothing to sniff at E

Natural foods
Wal-Mart goes crunchy

Electronic signatures
Just sign here E

China's art business
Painting by numbers E

Face value
A press lord's progress

Special Report

Aircraft emissions
The sky's the limit

Emissions trading
Gaming gases E

Finance & Economics

Shares in emerging economies
A nasty spillage

African stock exchanges
Out in Africa E

Euro-area interest rates
Waving a red flag E

Japan's monetary policy
Situation cloudy E

The Shanghai Six at five

Defence in South-East Asia
From talking to doing

Middle East & Africa

The death of Abu Musab al-Zarqawi
Will it make a difference?

Somalia
Guess who's running it now

Abu Dhabi
Sitting pretty

Iran and nuclear diplomacy
Risky bargaining

Israel
Quarrels as usual

Europe

France
The irresistible rise of Ségolène Royal

Germany and the World Cup
Klinsmann's castle

CIA flights in Europe
Report rendered

Italy's public finances
In a hole

Lithuania's government
Politics exam

The Czech election
Victory, of a sort

Charlemagne
Justice by majority

Britain

Trade unions
The ties that (still) bind

The East London raid
Disgruntled but not furious

July 7th bombings
Busy signal

Britain's airports
Landing room

Health-service finances
Blot on the landscape

Disability rights
Happy shoppers?

The Tories and Europe
Still spooked

Bagehot
Hard cop, soft cop

Articles flagged with this icon are printed only in the British edition of *The Economist*

Hurricanes and insurance
The price of sunshine

Hedge funds
Turn on, tune in, meet clients

Economics focus
News from the home front

Science & Technology

Animal experiments
Testing times

Evolutionary psychology
Anger management

Sasers
A little big noise

Micropalaeontology
Germination

Books & Arts

Politics in Iran
Shadows of uncertainty

Travelling in Iran
Find what ye seek

The future of Europe
Down with Westphalia

New fiction
Don't shoot the messenger

English heroines
Hail Mary

New theatre
African exuberance

Obituary

Nozipho Bhengu

Economic and Financial Indicators

Overview

Output, demand and jobs

Prices and wages

Economic forecasts

Money and interest rates

The Economist commodity price index

Stockmarkets

Trade, exchange rates and budgets

The Economist commodity price index

Emerging-Market Indicators

Overview

PC software piracy

Economy

Financial markets

Advertisement

Classifieds

Jobs
Senior- and Mid Level Staff
General call for senior- and mid level staff for anticipated development contra....

Business / Consumer
WSI Internet - Start Your Own Business
Business Opportunity - WSI Internet Start Your Own Busines....

Jobs
Executive Director
Global Consortium Creating a Common Business Reporting Language Seeks XBRL International, Inc.....

Jobs
Senior Institutional Development and Aid Coordination Expert (International)
Terms of Reference Post Tit....

Jobs
Director, Environment Programme
The Oak Foundation (www.oakfnd.org) commits its resources to address issues of glob....

Jobs
Chair in Contemporary Turkish Studies
Salary will be determined by the Director Applicatio....

Sponsors' feature

About sponsorship »

Copyright © The Economist Newspaper Limited 2006. All rights reserved. Advertising Info | Legal disclaimer | Accessibility | Privacy policy | Terms & Conditions | Help

Proudly Presented by =nEo=

PRINTABLE PAGE VIEW SPONSORED BY

About sponsorship

Politics this week

Jun 8th 2006
From The Economist print edition

AP

The leader of al-Qaeda in Iraq, **Abu Musab al-Zarqawi**, who was responsible for countless mass killings and beheadings, was killed by an American airstrike in Baquba, north of Baghdad. The news boosted Iraq's new government and its jubilant prime minister, Nuri al-Maliki. See article

After the Americans said they would join direct talks with **Iran** if it agreed to suspend its enrichment of uranium, the Iranians said that a new package of incentives presented to them with American approval by Javier Solana, the European Union's foreign-policy chief, “contained positive steps”. Russia's foreign minister said Iran might give its full response by the end of June. See article

An Islamist front suspected of harbouring al-Qaeda members captured the whole of Mogadishu, capital of fragmented **Somalia**, defeating secular warlords who are said to have been backed by American cash and arms. See article

The **Palestinian** president, Mahmoud Abbas, set a new deadline for Hamas, the Islamist rival party to his own Fatah which now runs the Palestinian government, to accept a clutch of propositions, including the implicit recognition of Israel. If Hamas refuses to do so, Mr Abbas says, he will hold a referendum on that score. See article

Flights to somewhere

The Council of Europe, an inter-governmental human-rights organisation, concluded that many European governments knew of the **extraordinary rendition** (questioning, perhaps torture, contracted out to foreigners) of terrorist suspects in CIA aircraft. It also said there was strong evidence of special CIA prisons in Poland and Romania. Both countries deny it. See article

Iceland's prime minister, Halldor Asgrimsson, resigned after his party did badly in local elections and in response to the country's financial troubles. The new prime minister, Geir Haarde, comes from a different party and is less interested than his predecessor in applying for membership of the European Union.

The **Czech election** produced a virtual dead heat between opposing centre-right and centre-left blocks. There will now be several weeks of manoeuvring before any new government can be formed. See article

A left-wing terrorist group, Revolutionary Struggle, claimed responsibility for last week's bomb attack on the **Greek culture minister**, George Voulgarakis, who was previously public-order minister (no one was hurt in the attack). Greece has a history of terrorism: in the 27 years up to 2002, the November 17 terrorist group killed 23 people.

American reservists arriving in Crimea, a mostly Russian-speaking part of **Ukraine**, ran into fierce demonstrations. The protesters strongly oppose the idea of Ukraine joining NATO, which President Viktor Yushchenko has made into a top priority.

Staying power

Taiwan's parliament voted to consider a motion recalling (ie, sacking) the country's president, Chen Shui-bian. But since such a motion needs a two-thirds majority, it is unlikely to succeed. The president has been damaged by a corruption scandal, and has handed over some of his powers to his prime minister.

Representatives of the **Sri Lankan** government and Tamil Tiger rebels met in Norway in an effort to stop the island slipping back into civil war after a recent bout of fighting.

India increased fuel prices in a bid to cut the huge cost of the subsidies it pays on oil, gas and petrol products. It exempted kerosene, the heating fuel of the poor. But a big political row is expected. See article

Violence continued to worsen in **Timor-Leste**, the former East Timor, even though 2,500 foreign peacekeepers have been stationed there after an army mutiny.

Japan's fertility rate was announced to have fallen to a record low level in 2005. Japanese women now bear, on average, only 1.25 children in their lifetimes, with 2.1 needed to maintain the population level. See article

Diversionary tactics

AP

The American Senate took up the issue of a constitutional ban on **gay marriage** again. With 49 senators voting in favour of a procedural measure, support for the ban fell well short of the two-thirds majority it would eventually need to pass. George Bush threw his full weight behind the proposal and conservatives vowed to return to the issue. Polls, however, show Americans do not want the constitution changed in this way.

The Republicans just held the congressional district in southern California left vacant by the conviction of Randy “Duke” Cunningham on corruption charges. The **special election**, in a Republican stronghold, was watched closely as a possible harbinger for the mid-term elections later this year.

After a somewhat sour race, Phil Angelides, **California's** treasurer, won the state's Democratic primary for governor. He now faces Arnold Schwarzenegger (who met little opposition in the Republican primary) in November. See article

The Census Bureau reported that **New Orleans's** population had fallen by 64%, to 158,353, between July 2005 and the beginning of this year, and that the proportion of blacks residing in the city had fallen to 22% from 37%.

Foiled plot

Police in **Canada** arrested 17 suspected Islamist terrorists after they took delivery of three tonnes of ammonium nitrate, a fertiliser that can be used for bomb-making. The authorities claimed that the men were planning terrorist attacks on targets in Toronto and Ottawa, including storming the Canadian Parliament and beheading the prime minister, Stephen Harper.See article

Hundreds of thousands of schoolchildren in **Chile** continued their protests against education policies, despite a promise by Michelle Bachelet, the country's new president, to spend $135m more per year on poorer schools.

More than 1,000 landless would-be farmers briefly occupied part of **Brazil's** Congress building, destroying computers, before being ejected by police.

Reuters

Alan García, a moderately populist former president, won **Peru's** presidential run-off by five percentage points, defeating Ollanta Humala, a nationalist former army officer and friend of Venezuela's Hugo Chávez. See article

Copyright © 2006 The Economist Newspaper and The Economist Group. All rights reserved.

Business this week

Jun 8th 2006
From The Economist print edition

Reversing its course of four months, **BAA,** a British airports-operator, accepted a takeover bid from a consortium led by **Grupo Ferrovial**, which the Spanish construction firm raised (again) to £10.3 billion ($19.3 billion). BAA's board supported the deal over a rival, and higher, offer from a consortium led by **Goldman Sachs**. Both bids underscored the attractiveness of BAA, which operates some of the world's busiest airports. See article

Ryanair, Europe's biggest low-cost carrier, reported an increase of almost 10% in net profit, to €306.7m ($373m) for the year ending March 31st. Michael O'Leary, the airline's chief executive, welcomed the sale of BAA, but said he still wants the company to be broken up to stimulate competition among Britain's airports.

The beginning, not the end

In the biggest move yet toward consolidation in the world's financial markets, **NYSE Group** announced plans to merge with **Euronext** and so create the first transatlantic exchange. The agreed €7.9 billion ($10.2 billion) deal came after months of conjecture that Euronext would merge with either the London Stock Exchange or Deutsche Börse. The New York exchange emerged as a serious suitor at the last moment, edging out the Germans, who have vowed not to give up. Comments by Jacques Chirac, France's president, that he would prefer Euronext to merge with Deutsche Börse, raised further questions about the deal.

In another blow to Japan's reputation for financial probity, **Yoshiaki Murakami**, a top fund manager and shareholder activist, told a televised press conference that he may have broken securities laws. Mr Murakami said he had not intended to commit a crime when buying shares in a radio-station operator in the knowledge that a takeover offer could be made on it by livedoor, an internet firm that was subsequently investigated in a separate inquiry. He was promptly arrested. See article

Building on success

Blackstone, a private-equity group, added to its expanding commercial-property portfolio by joining **Brookfield**, a Toronto-based property firm that owns the World Financial Centre in New York, to buy **Trizec Properties** and its Canadian holding company. The offer is worth $8.9 billion, one of the biggest ever for a real-estate investment trust. Trizec has several city-centre properties, including Bank of America Plaza in Los Angeles.

For the first time in the company's history, shareholders at **General Motors'** annual meeting ignored a recommendation from the board and voted for two proposals that change the way board members are elected (the current directors easily won re-election). Although non-binding, the decision is viewed as a missive from investors to register their discontent at the carmaker's poor performance.

In one of the biggest outsourcing investments in India, **IBM** said it plans to spend $6 billion over three years in the country developing its software-services business.

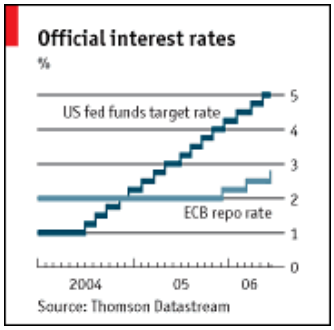
Federal prosecutors in America reached a deal with **BAWAG** in which the Austrian bank will pay at least $675m to settle charges stemming from last October's bankruptcy of **Refco**, a broker based in New York. BAWAG, which is owned by Austria's trade unions, admitted it had lent Refco's former chief executive millions of dollars to hide a bad debt, but will not face prosecution as it is co- operating with investigators.

Consolidation in Britain's life-insurance market continued apace as **Resolution** agreed to buy the life-insurance business of **Abbey**, a bank, for £3.6 billion ($6.7 billion).

Chevron's $8 billion liquefied-natural-gas project off the coast of Western Australia was thrown into doubt when the state's environment agency said it would block the scheme because of the potential damage to marine life. The decision, on one of Australia's biggest energy projects, paves the way for a battle with those state and federal politicians who have lent the Gorgon development strong support.

Testing times

The European Central Bank raised its main **interest rate** by one-quarter of a percentage point to 2.75%. The decision came after speculation about interest-rate policy in Europe and America, and worries about inflation and a slowdown, had upset **stockmarkets** around the world. Japan's Nikkei 225 suffered its biggest one-day percentage loss in a year; markets in China, India, and other emerging economies also fell sharply. In America, the Dow Jones Industrial Average dropped below the mercurial barrier of 11,000. Investors focused on comments by Ben Bernanke that there were recent “unwelcome” inflationary pressures, suggesting the Fed will raise rates at its next meeting. See article



Copyright © 2006 The Economist Newspaper and The Economist Group. All rights reserved.

Iraq

After Zarqawi

Jun 8th 2006
From The Economist print edition

A success, but for both Iraqis and Americans the struggle is far from over

Reuters

Get article background

THE killing this week of Abu Musab al-Zarqawi, al-Qaeda's leader in Iraq, may look like a stunning reverse for the world *jihad* against America, not only in Iraq but in the wider Middle East and beyond. From lowly beginnings as a petty thug in Jordan, this man had by the application of extreme violence made himself a hero to jihadists around the world. Though swearing fealty to Osama bin Laden, he had indeed started to become his rival. While Mr bin Laden stayed in hiding, probably somewhere in Pakistan, resting on his laurels from Afghanistan and September 11th, Mr Zarqawi led the Iraqi *jihad* in person. Lately, he had begun to direct attacks farther afield. He was the mastermind of the triple bomb attacks on Jordan's capital, Amman, last November, in which nearly 60 people died. More recently, Israel claimed to detect his hand in terrorist attacks on its borders. In Iraq itself he was responsible for many thousands of deaths (see article).

Killing a man is easy

Despite all this, what Iraq's prime minister, Nuri al-Maliki, called the “termination” of Mr Zarqawi will not terminate the insurgency in Iraq. Such rebellions benefit from having charismatic leaders, and Mr Zarqawi was a godlike *emir* to his bloodthirsty followers. But they can also flourish without them. Remember, for example, the false hopes raised at the end of 2003, when Saddam Hussein was at last plucked by American soldiers from his hiding hole in the outback. This humiliation, many believed, would show Iraqis that the old order had passed and that they had now to make way for the new. It did not happen. Since 2003 the insurgency has grown more violent, more widespread and more complex. The safest bet this week is that, even without Mr Zarqawi, the violence will go on until the rage that nourishes it has been uprooted.

What are the sources of that rage? They are, alas, multiple. What Mr Zarqawi represented was the pure, jihadist end of the spectrum of hate. In his world view, and that of al-Qaeda, a global war is under way between Islam and the unbelievers—the latter led by America but encompassing also the many Muslim regimes that refused to follow the righteous path and were therefore stooges and apostates. This jihadist banner has attracted volunteers to Iraq from all corners of the Muslim world, just like the anti-Soviet *jihad* in Afghanistan in the 1980s. It goes without saying that the zealots who hold such beliefs are not going to be deflected from a sacred cause by the martyring of a single leader. Their operations might be disrupted, but their struggle will continue.

The jihadist strain is, moreover, only part—and almost certainly the smaller part—of the virus of violence that has engulfed Iraq since the American-led invasion. Though it has suited the United States to talk up the role of foreigners in perpetrating the hundreds of suicide-bombings, the plain fact is that most of the insurgents are homegrown. Some may subscribe to some of the views of al-Qaeda, but most have taken up arms for other reasons. These range from a simple nationalist, Arabist outrage at the spectacle of foreign, infidel occupation to a

deep fear, especially among Iraq's formerly dominant Sunni Arab minority, of what the future holds.

For many of these Sunni Arabs, the bestowal of democracy is not the boon George Bush says it is. Majority rule, as the recent election demonstrated, looks to them horribly like a formula only for the loss of former privileges and the transfer of power from their own group to Iraq's majority Shias. It does not help that a growing number of Sunnis have come to swallow the al-Qaeda message that Shias are apostates—and that Iraq is in the process of being betrayed to Iran, its non-Arab Shia neighbour and traditional enemy. Violence, moreover, has a habit of feeding itself: since the destruction of a Shia shrine in February, probably by Mr Zarqawi's men, Iraq's Shias have abandoned their former restraint and started to hit back. Ethnic killings have become commonplace on both sides, giving a new spin to a cycle of violence that will not be interrupted by the elimination of Mr Zarqawi.

There is, however, one big way in which this week's success might be able to nudge Iraq in a better direction. It can be used to dispel the impression of military and political impotence that has dogged Iraq's elected government. This process had already got under way in recent weeks after the appointment of Mr Maliki as prime minister. He has acted more decisively than his predecessor, breaking a log-jam in parliament and forming a coalition that includes Sunni parties. On a visit to the fractious south, he scolded Shia militia leaders for their defiance of central authority. By denouncing strongly American excesses in Iraq—such as the alleged massacre at Haditha—and promising an early handover of most provinces to Iraqi military control, he has made it harder for the insurgents to paint him as a stooge of the occupiers. Soon after Mr Zarqawi was killed, Mr Maliki filled the previously vacant posts at the interior ministry and ministry of defence. The claim that Iraq's own security forces were involved in hunting down Mr Zarqawi will add to the government's credibility. Most ordinary Iraqis crave nothing more than law and order.

The mission is still not accomplished

Americans and Iraqis long for a bold stroke that will end Iraq's suffering. It is a vain hope. Neither the killing of Mr Zarqawi nor any breakthrough on the political front will stop the insurgency and the fratricidal murders in their tracks. The painful process already under way—gathering consensus around the new government, spreading its writ, training loyal policemen and reliable soldiers—is the only way ahead. Iraq has no experience of proper democracy and long experience of political violence. Turning it around will take years and cost many more lives. Americans in particular may be prone to impatience. But impatience in the war against Islamist extremism would be folly. Thanks in part to Mr Bush's impatience and neglect, jihadists are recovering ground in both Afghanistan and Somalia (see article and article). It is good that a murderer as brutal as Mr Zarqawi has been killed. But it is not yet victory either in Iraq or in the broader struggle against terrorism.

Copyright © 2006 The Economist Newspaper and The Economist Group. All rights reserved.

Aircraft emissions

The dirty sky

Jun 8th 2006
From The Economist print edition

aviation-images

Governments need to take action to cut aircraft emissions

ALL big ideas start life on the fringes of debate. Very often it takes a shocking event to move them into the mainstream. Until last year interest in climate change was espoused mainly by scientists and green lobbyists—and the few politicians they had badgered into paying attention. But since Hurricane Katrina, something seems to have changed, particularly in America. Nobody knows whether the hurricane really had anything to do with the earth warming. But for the first time less verdant voters and big business had a clearer idea about the “extreme weather events” whose increasing frequency scientists had been talking about.

There are plenty of anecdotal signs of change: Britain's pro-business Tories have turned green; Al Gore is back in fashion in America; hybrid cars no longer get stared at. Companies are beginning to take action (see article) and encouraging governments to do the same. Europe already has an emissions-trading system (ETS) for its five dirtiest industries. In America, although the Bush administration still resists federal legislation, more and more states do not. Even China has brought in a myriad of measures, including fuel-economy rules 20% tighter than America's.

So far the political rows about global warming have centred on two polluters, smoggy factories and dirty cars. Now a new front is being opened up—in the skies. Next month the European Parliament will vote on whether to extend its emissions-trading system to airlines. If it decides in favour, the whole industry will feel the impact, for it will affect not just European airlines but all those that fly into and out of the EU. Talk about this prospect soured the International Air Transport Association's annual meeting this week in Paris, where the lords of the skies would have otherwise congratulated themselves for surviving a wretched few years of terrorism threats, disease scares and rising fuel prices. But whatever happens in the EU, the airlines look set to face vociferous demands that they should pay for their emissions (see article).

A few clouds in the sky

In some ways, the airlines are an odd target for greens. They produce only around 3% of the world's man-made carbon emissions. Surface transport, by contrast, produces 22%. Europe's merchant ships spew out around a third more carbon than aircraft do, and nobody is going after them. And unlike cars—potent symbols of individualism (and, some would say, individual selfishness)—airlines are public transport, jamming in as many people as they can into each plane. By shipping hordes of ordinary people around the globe for not very much money, they have improved the lives of millions.

What's more, many air travellers cannot easily switch. Car drivers can hop on the train or the bus, but transatlantic travellers can't row from London to New York. Nor can aircraft fuel be swapped for a green alternative. Car drivers can buy electro-petrol hybrids but aircraft are, for now, stuck with kerosene, because its energy-density makes it the only practical fuel to carry around in the air.

Yet in other ways, airlines are a fine target. They pay no tax on fuel for international flights, and therefore escape the “polluter pays” principle even more niftily than other forms of transport. Their emissions are especially damaging, too—partly because the nitrogen oxides from jet-engine exhausts help create ozone, a potent greenhouse gas, and partly because the pretty trails that aircraft leave behind them help make the clouds that can intensify the greenhouse effect. And the industry's energy consumption has been growing faster than that of other polluting industries. Air transport will soon be central, not marginal, to the emissions issue.

Education, not regulation

What, if anything, should be done? As usual, there are dangers on both sides. Excessive regulation would unnecessarily restrict individual choice and throttle an industry that makes both rich and poor countries better off. On the other hand, airlines no less than any other industry must pay for pollution.

As the debate grows, some flyers may reconsider their ways. Put frankly, air travel makes a mockery of many people's attempts to live a green life. Somebody who wants to reduce his “carbon footprint” can bicycle to work, never buy aerosols and turn off his air-conditioner—and still blow away all this virtue on a couple of long flights. And, although other forms of transport cannot easily replace flying, demand for many flights is sensitive to price. A quarter of flying is business-related; many of those journeys are essential, but others achieve only marginally more than a telephone call or videoconference. As for stag-nights in Prague and student spring breaks in Jamaica—well, the gangs of drunken revellers probably wouldn't notice if they were in Blackpool or Daytona Beach instead, as indeed many were a decade ago.

However, addressing individuals' consciences won't go that far. Air pollution is a collective problem, which in this case requires government action—or, to be more accurate, a change in policy. As it stands, the market is skewed in favour of air travel; the aim should be to make it more balanced. Two approaches are on offer. Some think the best way to limit emissions is to tax them; others argue for a system that sets a cap on pollution, and lets polluters trade the right to emit.

This newspaper has long argued for a global carbon tax as a reasonable way to tax all forms of pollution. But there is no sign of governments embracing that idea. One of the strongest arguments for aircraft emissions being dealt with by a trading system is practical: a system already exists. Europe's ETS has many obvious flaws (see article). Given that it is the world's first serious attempt to cut emissions internationally, that is not surprising. The world can learn from its imperfections, and design a better scheme for airlines.

Slowly, businessmen and politicians are coming to agree with scientists. If this generation does not tackle climate change, its descendants will not think much of it. That means raising costs for all sources of pollution. Even those deceptively cheap weekend breaks cannot be exempt.

Copyright © 2006 The Economist Newspaper and The Economist Group. All rights reserved.

PRINTABLE PAGE VIEW SPONSORED BY

About sponsorship

Sport and politics

Let the games begin

Jun 8th 2006
From The Economist print edition

Reuters

Why the World Cup is better than the Olympics

Get article background

SEVENTY years after Jesse Owens sprinted to victory in the 1936 Olympic Games, the Berlin Olympic stadium is once again at the centre of the sporting world. Football's World Cup, which starts this week, will come to a climax with a final in the refurbished Olympic stadium in Berlin next month.

Fortunately, the political overtones that made the Berlin Olympics such a sinister event are completely absent. This is not just because Germany is now a democratic country. It is also because the World Cup, unlike the Olympics, is wonderfully difficult to manipulate for political purposes. Over its long history, success at the Olympics has usually been a fairly accurate measure of global political power. Although the world now remembers the snub that Jesse Owens delivered to Nazi theories of racial superiority, the Germans came top of the Olympic medal table in 1936, reflecting the Nazi regime's growing power. During the cold war, the United States and the Soviet Union repeatedly struggled to gain a symbolic victory, by winning the most medals at the Olympics. Already a similar, politically charged battle for supremacy between America and China looks likely in the 2008 Beijing Olympics.

By contrast, the World Cup has its own hierarchy, which is pleasingly divorced from the global pecking order. There is a sole superpower—Brazil. The Italians and French, apparently doomed to gentle decline in the real world, remain formidable competitors on the football field. And then there are the rising powers—which are more likely to hail from Africa than Asia. America will field a serious team at the World Cup, but nobody expects it to win. The Chinese, who have discovered a passion for football, failed to qualify for the tournament.

Football's power structure reflects a satisfying characteristic of the global game. Despite the undoubted prestige to be had by becoming champions of the world, it is extremely hard—if not impossible—for a determined and well-resourced government to create a World Cup-winning team. Arguably, the Italians managed it in the 1930s; and Argentina's World Cup winners in 1978 received plenty of backing from the ruling military junta. But a modern-day dictator who ordered his minions to create a team that could beat Brazil—or even play in their style—would be swiftly disappointed.

How to run rings around the Olympics

Again, the comparison with the Olympics is striking. Think of all those robotic East German sprinters, Romanian gymnasts and Chinese swimmers churned out by state-backed programmes. By contrast, a winning football team needs not just athleticism but also a spark of creativity and style that cannot be manufactured by sport's central planners. Even taking drugs does not appear to be much help for footballers.

As a result, every World Cup seems to throw up a team that suddenly clicks at the right time and beats a much-fancied opponent. Think of North Korea vanquishing Italy in 1966 or Senegal turning over France, the reigning champions, in 2002. It is this capacity to surprise that helps make the World Cup such a gripping event. And it is

why in the endless competition between the Olympics and the World Cup for the title of “the world's greatest sporting event” we vote for the World Cup.

Copyright © 2006 The Economist Newspaper and The Economist Group. All rights reserved.

PRINTABLE PAGE VIEW SPONSORED BY

About sponsorship

Nuclear disarmament

The fewer the better

Jun 8th 2006
From The Economist print edition

Something the nuclear powers owe the rest of the world

THOUGH not yet a breakthrough, the news from the proliferation front this week was brighter. Javier Solana, the European Union's quasi-foreign minister, flew to Iran with an extraordinary offer. If the mullahs agreed to suspend their nerve-jangling nuclear enrichment and reprocessing, they would be granted not only various economic rewards but their first chance for more than two decades to hold direct talks with America. If they refuse, they may face sanctions in the UN Security Council. For once, the mood music from Washington and Tehran was almost harmonious (see article).

But making the world safer from nukes is not a job just for the suspected proliferators. The official nuclear powers—America, Russia, Britain, France and China—need to acknowledge something they like to forget: that the Nuclear Non-Proliferation Treaty (NPT) was to some extent erected on a fiction.

In return for nobody else joining their club, the five promised to work to get rid of their nuclear weapons, as part of a process of general disarmament. That seems as far off now as it ever was (see article). And the belief among many governments that the five are not holding up their end of the bargain exposes them to charges of hypocrisy, adds to the NPT's woes and makes it harder to encourage the three treaty outsiders—India, Pakistan and Israel—to curb their nuclear arsenals.

With the best will in the real world, everyone knew that getting rid of nuclear arms was never going to be easy. What counts for governments who understand this is that the nuclear haves find ways of moving purposefully in the right general direction. As the cold-war negotiations showed, curbing arms races and cutting nuclear tallies (even to numbers far from zero) is in the interests of all, the haves included. It still is, for the same reason that these weapons have been around for so long: the world is an unpredictable place. America and Russia are these days not the post-cold-war chums they once hoped to be. America and China, though conscious of the need to rub along peaceably, suspect each other's intentions, especially over Taiwan. All could be drawn into regional rivalries in the Middle East, South Asia and East Asia if these turn overtly nuclear. The dangers should not be exaggerated. But tighter controls make for a safer world, come what may.

What can and can't be done

That means pushing nuclear numbers as low as possible. By 2012 America and Russia have agreed they will deploy no more than 1,700-2,200 strategic warheads each, down two-thirds from the number in 2002, when their agreement was sealed. Yet of the realistic threats facing both countries, including from a still growing Chinese arsenal, there are none that could not readily be deterred by a lot fewer. And if Russia would cut its thousands of tactical nuclear weapons, America could get rid of the few hundred it still keeps. Meanwhile, both have plans to modernise their remaining weapons. It would help avoid any danger of a new arms race if newer warheads meant fewer too.

If overall nuclear numbers can be driven down further, Britain and France also need to put their weapons on the negotiating table. As for China, it is the most secretive of the official five. In cold-war times it used to say breezily that it would join arms-control talks with the other nuclear powers when America and Russia cut their arsenals by half. When they did, China fell silent. Yet more transparency over its nuclear plans could help draw India and Pakistan into a more stabilising web of constraint in a dangerous neighbourhood.

Meanwhile, America's refusal to ratify the Comprehensive Test-Ban Treaty (China has not ratified it either) makes it hard to press India, Pakistan and Israel to do so. A treaty banning the production of fissile material for bombs has been stuck in the UN's Conference on Disarmament for a decade. Though India claims to support such a treaty, its weapons plans clearly count on the impasse continuing. America unwisely missed a chance to make a fiss-ban a condition of its recent proposed controversial deal with India on civilian co-operation.

Tighter stewardship of fewer nuclear weapons and the technologies and materials that go into them will not, on its own, usher in a nuclear-free world. But to most these would be welcome steps that could help turn the recent chain reaction of suspicion and rivalry that is damaging the NPT into one that could improve the security of all. That is surely the least that the official nuclear powers owe the rest.

Copyright © 2006 The Economist Newspaper and The Economist Group. All rights reserved.

PRINTABLE PAGE VIEW SPONSORED BY

About sponsorship

Futurology

The rights and wrongs of science fiction

Jun 8th 2006
From The Economist print edition

Corbis

Three tests to evaluate visions of the future

THE idea that robots must be carefully programmed to prevent them from harming humans will be familiar to readers of Isaac Asimov's "I, Robot" stories. As it happens, real-life "robo-ethicists" are now grappling with the same question (see article). So did Asimov's tales accurately predict the future?

Not exactly. In his stories, robots were ubiquitous, but computers were unusual, large and expensive—much as they were when he wrote in the 1950s. Today the opposite is true: computing power is cheap and it is the mechanical parts that make robots expensive and rare. On the other hand, the giant, oracular computer brains able to answer any question are not unlike Google. And although Asimov's "positronic" brains do not exist, positrons are indeed used to probe human brains in positron-emission tomography (PET) scanning.

So Asimov's record was mixed. He and other writers of science fiction can provide glimpses of the future, but they are often wrong. And yet their mistakes are not random. When trying to sift science fiction's accurate predictions from its erroneous ones, it is worth applying the following three tests.

First, is the imagined world really an allegory for some aspect of the present day? George Orwell's "1984", published in 1949, was about post-war totalitarianism, for example. The ethics of cloning and its consequences for personal identity, the cause of much debate today, has likewise inspired several recent sci-fi books and films. Imagined futures that are really thinly disguised commentaries on current affairs are not chiefly concerned with reliable prediction. Yet look in the periphery of such allegorical tales and you can find some surprisingly accurate vaticination. The versificator in "1984", for example, a machine that generates music to keep the masses happy, is not unlike the systems used to predict pop hits today.

The second test for evaluating a sci-fi scenario is whether it makes the mistake of assuming that technology alone shapes the future. For although the future path of technology can, to some extent, be extrapolated from existing trends, the social forces that help or hamper its adoption are far less predictable. The advance of genetic engineering has been held up as much by social objections as technical ones. Conversely, unforeseen social factors meant that mobile phones, strikingly absent from much early 20th-century science fiction, spread faster than even technologists predicted.

Innovation, but not as we know it

The final test is to ask whether a prediction is compelling enough to become self-fulfilling, by inspiring inventors to implement it. Science fiction does not exist in a vacuum; it is particularly popular among people of a technological bent and frequently provides the motivation for real-life innovation. Two devices found in science fiction—the universal translator able to understand any alien tongue, and the space elevator capable of lifting payloads into orbit—have both been taken up by researchers, though they still have a long way to go. "Star Trek" has been particularly influential. It is credited with popularising automatic sliding doors—and where do you think they got the idea for those mobile phones that flip open?

Copyright © 2006 The Economist Newspaper and The Economist Group. All rights reserved.

PRINTABLE PAGE VIEW SPONSORED BY

About sponsorship

On the United Nations and guns, Niall Ferguson, Poland, Scotland

Jun 8th 2006
From The Economist print edition

The Economist, 25 St James's Street, London SW1A 1HG
FAX: 020 7839 2968 E-MAIL: letters@economist.com

Taking aim

SIR – It was interesting to learn from Wayne LaPierre, the leader of the National Rifle Association, that he thinks the latest campaign against the United Nations will double the NRA's membership ("UNbelievable", May 27th). But he should have verified some of his facts. The UN has not chosen the Fourth of July (a holiday at UN headquarters) to hold a so-called "global gun ban summit". But it will hold an important conference in June and July to assess the results of its voluntary programme to tackle illegal small arms (gun-running), five years after it was unanimously approved by all member states, including the United States. This has nothing to do with a global gun ban and does not deny the legal right of law-abiding citizens to own small arms in accordance with their national laws. The UN is in no way seeking to take away Americans' guns, but is trying to ensure that illegal guns will not fall into the wrong hands, like those of child soldiers or criminals. Is this not a laudable objective?

Shashi Tharoor
Under-secretary-general for communications and public information
United Nations
New York

War of the words

SIR – The review of my book "The War of the World" was both facile and defamatory ("Time's mortuary", June 3rd). Your reviewer wrote that: "Some long and detailed passages seem undigested, the output, it would seem, of an army of research assistants." Research assistance—like the gathering of stockmarket data from back numbers of *The Economist*—is not writing assistance, as the "army" of 12 students who helped me over the years will confirm. Moreover, the complaint that my books "seem to be written to deadlines set by television series...rather than by his research or thinking" ignores the fact that I have been working on this project for nine years, accumulating material on the determinants of 20th-century violence long before the subject was so much as broached with Channel 4.

Niall Ferguson
Harvard University
Cambridge, Massachusetts

Debating Poland

SIR – The cautiously optimistic outlook for the Polish economy presented in your survey on Poland is debatable (May 13th). To ensure long-term growth, structural reform is called for. Alas, the current government, distrustful of markets, is steeped in *dirigisme* and unlikely to take on vested interests (trade unions) that thwart reformist efforts. Instead of liberalising the economy, it plans, for instance, to ban shops from opening on Sundays, which is bound to result in an increase in already high unemployment. The administration's electoral slogan, "cheap state", is just a paper pledge as it is currently expanding: new ministries, replete with cars and secretaries, have been created for coalition partners.

Piotr Zientara
Gdynia, Poland

SIR – I disagree with your characterisation of the Kaczynski brothers as weird but benign. Their appetite for power has prevented a coalition with Civic Platform, which would have given Poland a government with a strong mandate and the necessary competencies to implement meaningful and overdue economic reforms. The Kaczynski brothers missed an historic opportunity and have harmed Poland.

Marcin Telko
Chapel Hill, North Carolina

SIR – While it may be true that the worst bits of Poland are “egregiously bad”, it certainly does not apply to public transport, at least not in Warsaw. The example you gave of the bus from the airport to the city centre is misleading; in fact, most airport buses are modern and relatively clean (although I can't argue with “pickpocket-infested”). If they are slow it is because traffic in Warsaw can be a disaster, making public transport all the more appealing. It is easier for me to get from A to B in Warsaw than in my native San Francisco and much cheaper, even after accounting for the difference in spending power. If you need an example of the worst bits, you'd do better to look at pollution, corruption of all sorts, and the fact that no one will give you change for a 100 zloty bill.

Alex Zarganis
Warsaw

Brave hearts

SIR – Your lament for Scotland raised the hoary old chestnut that we Scottish should be condemned as subsidy junkies because government spending is slightly higher in Scotland than in the rest of the United Kingdom (“Home truths about home rule”, May 20th). Leaving aside the fact that Scottish North Sea oil has subsidised Westminster governments since 1979 (and that the true extent of oil reserves was deliberately hidden from the Scottish public, for fear of inflaming nationalist sentiment), you ignore the significance of Scotland's low population density. With a tenth of people in the United Kingdom living in one-third of its land mass, it is obviously going to cost more to deliver services such as health, water and sewerage in my native Eilean Siar (Western Isles) than it is in urban Chelsea.

Dr Murdo Macdonald
Head of mycobacterial research laboratory
Anandaban Hospital
Kathmandu, Nepal

SIR – You understated the importance of a “fairer voting system for local government”. For decades Scotland has been a virtual one-party state of Labour MPs and local-authority fiefs. In Glasgow, 71 of 79 council seats are held by Labour. I opposed devolution, but it is an insult to democracy that the Scottish National Party should return only three councillors with 20% of the vote. If proportional representation can help break the kind of political dominance that must surely impress the North Koreans, all my grumbles about devolution (the Holyrood building resembles a Vietnamese brothel) will have been worth the price.

Nicholas Mayes
Glasgow

SIR – One of the first things I noticed about the English when I moved here in the 1960s was the number of people who said “England” or “English” in contexts in which people in Scotland would have said “Britain” or “British”. Remember that Nelson sent his famous signal, “England expects”, a century after the Act of Union. Before devolution, the impression was that the English did not really notice Scotland, regarding it at best as a kilted extension of the Lake District. I do not think that anyone should be surprised at some mild Anglophobia north of the border.

Elizabeth Holroyde
Warwick, Warwickshire

SIR – I support football teams playing against England because of the constant drivel emanating from the English media about their team's chances of winning the World Cup this year. Every time I open a newspaper, listen to the radio or watch TV I am bombarded by commentators harking back to 1966, when England last won the cup. I cannot escape it. And if they do win, I will not be able to bear the self-congratulatory books and TV programmes about “How we won the World Cup” that will go on and on for the next 40 years.

Andrew Small
Pencaitland, East Lothian

Copyright © 2006 The Economist Newspaper and The Economist Group. All rights reserved.

Economist.com SPECIAL
PRINTABLE PAGE VIEW SPONSORED BY
About sponsorship

Nuclear disarmament

The long, long half-life

Jun 8th 2006
From The Economist print edition

The five countries officially recognised as having nuclear weapons are all committed to giving them up. Why don't they?

"I FELT as if there had been an earthquake beneath my feet," was Margaret Thatcher's recollection of the 1986 Reykjavik summit between Ronald Reagan and Mikhail Gorbachev. What shocked Britain's "iron lady", astonished the watching world and startled the summiteers themselves was how close the leaders of the hitherto battling superpowers had seemed to come to agreeing to give up all their nuclear weapons.

The heady moment passed. Yet why should the vision of nuclear disarmament have seemed so shocking? Why does achieving it still seem so far away? And what, if anything, might make its prospects brighter in future?

Although they seem to be objects of desire for such countries as Iran and North Korea, nuclear weapons are supposed to be on their way out. The five officially recognised nuclear powers—America, Russia, Britain, France and China—are all legally committed under the Nuclear Non-Proliferation Treaty (NPT) to good-faith negotiations "on effective measures relating to cessation of the nuclear-arms race at an early date and to nuclear disarmament". All who sign the NPT are also treaty-bound to pursue "general and complete disarmament under strict and effective international control".

Some believe it is quixotic to expect much nuclear disarmament until all non-nuclear countries have started to turn their swords, tanks, missiles and chemical and biological weapons into ploughshares. Nuclear weapons, they note, helped keep a peace of sorts during the cold war (a nuclear war fought between such powerfully armed adversaries would have been tantamount to mutual suicide). So there is no reason to believe today's world would be safer without the bomb, say the sceptics.

Others would ban the bomb and damn the consequences. Anti-nuclear campaigners have long argued that nuclear weapons are not just legally destined for the scrapheap (a judgment upheld by the International Court of Justice in 1996), but morally abhorrent, too, and uniquely so. Moreover, if it would be immoral to use them (the court split on that), say the disarmers, it would be immoral to threaten to use them—so hanging on to them, even as a deterrent of last resort, is unacceptable.

Nuclear disarmament has never been adopted as a practical policy by any of the nuclear five. But they did agree in principle in 1995 that steps towards that end should not have to await disarmament of the more universal sort. That is because their promises are part of a bargain that lies at the heart of the non-proliferation treaty. The treaty recognises that five countries have nuclear weapons (all had them before 1970, when the NPT came into force, though France and China signed it only in 1992), but obliges them to give them up eventually. For their part, the have-nots have agreed not to seek nuclear weapons, but can in return expect help in developing nuclear energy for peaceful purposes.

But the bargain is now looking shaky. Though the NPT is all but universal, the three countries that have refused to join it—India, Pakistan and Israel—are now nuclear-armed. India's bomb tests in 1998, and then Pakistan's,

dashed hopes that nuclear weapons would simply fade into post-cold-war irrelevance.

Of cheats and profiteers

Confidence in the NPT itself has also been undermined. North Korea claims to have pulled out in 2003, having been caught cheating twice, and says it has built several bombs. Iran claims not to want any, but lied for 20 years to inspectors about its uranium and plutonium activities (which can be used for generating electricity, or abused for bomb-making), leading many to suspect that its intentions are far from peaceful. Both tapped a well-stocked nuclear blackmarket, centred on Pakistan's former chief nuclear scientist, Abdul Qadeer Khan, that also supplied Libya and possibly others.

A report this month from an international commission led by Hans Blix, who directed weapons inspections in Iraq before the 2003 war, blames the strains on the continuing sharp division between the haves and the have-nots: unless the nuclear powers show themselves more ready to give up their weapons, it argues, others will try to crash the club. The commission calls for a world summit at the UN to give a new push to disarmament, non-proliferation and efforts to prevent terrorists getting weapons of mass destruction.

Certainly, the NPT's five-yearly reviews have become bad-tempered affairs. The disarmers blame the nuclear powers, particularly America. The Bush administration, they claim, is reneging on promises made by all the nuclear five. It refuses to ratify the Comprehensive Test-Ban Treaty (CTBT), which all five have signed, though China too has yet to ratify it. America supports a treaty to end the production of fissile materials, such as highly enriched uranium and plutonium, for bomb-making, but without an international inspection effort, preferring to rely instead on members policing each other. America has also been making plans for new bombs.

Might disarmament by any or even all of the nuclear five affect the calculations of an Iran or North Korea—let alone India, Pakistan or Israel? Most nuclear politics is about regional rivalries. And in a “nuclear-free” world, or even one with very few bombs, successful cheating would be at even more of a premium.

That said, the haves do provide a fig-leaf for those who want a bomb of their own. India has in the past been candid about its hopes of using its nuclear status to win it a permanent seat on the UN Security Council alongside the official nuclear five. Yet at the same time the actions of those who would bend, break or reject the treaty make it easier for existing weapons states to hang on to their nuclear toys.

If these do not seem auspicious times for nuclear disarmament, what of the NPT promises? The old nuclear-arms race between America and Russia had virtually ended even before the Berlin Wall fell in 1989, and since then nuclear stockpiles have shrunk dramatically. So long as such weapons exist at all, countries that have them will want to maintain their safety, reliability and effectiveness—all the more so as their numbers shrink. Accordingly, all of the nuclear five have modernised the weapons they have kept, or are thinking of doing so. That offends disarmers.

The cuts have nonetheless been deep. During the cold war America and Russia had thousands of nuclear warheads: America built 70,000 between 1945 and 2000, the Soviet Union 55,000. Under the Moscow treaty signed in 2002, George Bush and Vladimir Putin agreed to reduce their countries' arsenals to 1,700-2,200 deployed strategic warheads apiece by 2012 (see table 1). Neither side has an interest in restoring cold-war numbers, and Russia would have found it economically crippling to try. Disarmers and arms-control purists, however, dislike the Moscow treaty because it has no verification provisions. Neither side, they point out, is obliged to destroy the warheads taken out of service. And in theory the deep cuts required could be reversed after 2012.

Yet they could also go deeper still. Russia now claims to rely more on nuclear weapons (including tactical ones that America has all but abandoned) for its defence, to make up for deficiencies in its cash-strapped armed forces. That is troubling, but does not preclude further reductions, since potential targets are fewer. Critics did not like the Bush administration's plans for research into nuclear bunker-busters when they were announced a few years ago. But Congress has cut the funds. America is also working on a “reliable replacement warhead”, more robust and easier to maintain than its predecessors, for use in its remaining arsenal. If it works, though, the number of non-deployed warheads kept as spares could be sharply cut.

Britain and France, like America and Russia, have been cutting, too. Of the official five, China is the only one still adding to its nuclear force, albeit from a low base.

Nor have the official nuclear powers simply sat smugly on their bombs. Extended deterrence, the readiness to shelter non-nuclear allies under a friendly nuclear umbrella, has helped keep proliferation in check—hence Mrs Thatcher's alarm when it looked as though Reagan was about to strip NATO of American nuclear protection. Of the countries that could have built a bomb (see table 2), many simply chose not to try. Others over the years had their arms twisted, mostly by America.

More or less 1

Nuclear warheads

	Early 1990s	Present	2012
United States*	9,680	5,235	1,700-2,200‡
Russia*	10,996†	3,503	1,700-2,200‡
Britain	260	185	Similar
France	538	348	Similar
China	250	200 - 400	Building more
India	na	40-50	Building more
Pakistan	na	30-50	Likely to build more if India does
Israel	100-200	200	na
Iran	0	3-10 years from a nuclear capability§	
North Korea	Possibly 1 or 2	Up to 10	Claims to be building more

*Strategic warheads †Soviet Union
‡Allowed under Moscow treaty §Current estimate
Sources: *Bulletin of the Atomic Scientists;* International Institute for Strategic Studies; Stockholm International Peace Research Institute

The disarmament ayatollahs

For all that, officials in the firing line complain that no matter how low America and the others go, the "disarmament ayatollahs" will never be satisfied. Well, they would be if the number were zero, comes the riposte, and that is the number that the nuclear five have committed themselves to, one day, under the NPT. Let's get going.

Here the difficulties arise. Most governments recognise that the nuclear powers are not simply going to give up their weapons. The basic know-how needed to build a bomb is by now 60 years old, and cannot be disinvented. Nor does the experience of the Chemical Weapons Convention and the Biological Weapons Convention, which outlaw these weapons, offer great reassurance. Of those that have signed these conventions (and not all countries have), several are suspected of cheating.

Meanwhile, the UN Security Council, supposedly the place of final resort to deal with threats from all types of weapons of mass destruction, has proved feeble in dealing with those who break treaties. Iraq ran rings round it for much of the 1990s. North Korea has cheated and flounced out of the NPT, so far without penalty. Now Iran is proving another difficult test.

Haves, may-haves and have-nots 2

Countries with nuclear weapons or programmes

NPT nuclear-weapons states
Britain, China, France, Russia, United States
Non-NPT nuclear-weapons states
India, Israel, Pakistan
Suspected programmes
Iran, North Korea
Intentions suspected but no weapons programme identified
Algeria, Saudi Arabia, Syria
Programmes recently ended
Iraq, Libya
Scrapped inherited weapons
Belarus, Kazakhstan, Ukraine
Programmes or consideration ended after 1970
Argentina, Australia, Brazil, Canada, Romania, South Africa, South Korea, Spain, Switzerland, Taiwan, Yugoslavia
Programmes or consideration ended before 1970
Egypt, Norway, Italy, Sweden, Japan, West Germany

Source: "Universal Compliance: A strategy for nuclear security" by George Perkovich et al, Carnegie Endowment for International Peace

Given this experience, few governments, whether reluctant or enthusiastic disarmers, have ever bent their minds to working out whether it might be feasible to get rid of the bomb safely. All seem to prefer to trade well-worn slogans.

Signs of seriousness might start with renewed attempts to tackle the threats to peace and security that drive regional arms races. They would also have to include efforts to work towards the creation of zones that would be free of weapons of mass destruction. The Middle East and South Asia would be two early candidates.

Work has been going on since the early 1990s to secure nuclear materials in Russia and other ex-Soviet countries, but the effort would need to be stepped up and extended worldwide. The attempts to block illicit transfers of nuclear materials and technology would have to be intensified. Surplus weapons would need to be dismantled more speedily. And some way would have to be found to reassure the have-nots that the haves were reducing the role, as well as the numbers, of nuclear weapons in their defence policies.

Difficulties, and more difficulties

Even many a nuclear enthusiast would agree that such steps would make today's world safer. But much more would be needed to make tomorrow's world safe for the much deeper cuts in nuclear weapons that might precede their total abolition.

One idea for binding nuclear and non-nuclear states into a web of controls and reassurance is a Nuclear Weapons Convention, along the lines of the Chemical and Biological Weapons Conventions, setting out progressive steps towards an eventual ban. These would need to include obligations not to develop, test or produce new weapons; a transitional moratorium on use; a timetable for dismantling weapons; an obligation on all states to prevent the transfer of nuclear skills and materials; and a programme for converting or shutting down completely all weapons-related facilities. As with UN Resolution 1540, which obliges governments to pass laws to prevent weapons of mass destruction and related materials reaching terrorists, the rules would have to apply not just to states, but to companies and individuals as well.

The practical difficulties in negotiating such a convention would be enormous. Just look at the complexities involved in bringing the CTBT into force. In all, 44 countries with nuclear-power or research reactors, including India, Pakistan, Israel and North Korea, must ratify the treaty before it can take effect. It is not just America's reluctance that is causing the delay—though, as the Blix commission rightly says, that ratification would trigger others.

The next logical bit of legal scaffolding for a nuclear-freer world would be a fissile-material ban. In theory almost every country supports such a ban (though some, like India, might not mind if the talks dragged on for years). The nuclear five are all thought to have stopped producing uranium and plutonium for weapons; only China refuses to say so publicly. But talks in the UN Conference on Disarmament have stalled over efforts to press America into space and disarmament discussions. Verification concerns are another blow. America argues that a credible verification regime for the treaty would be too costly and intrusive for anyone to accept.

Others disagree. But if governments are ever to generate the will to consider steps towards a nuclear zero, the devil at each stage will be in such verification technicalities. The lower the numbers go, the greater the need for confidence that all are indeed cutting their weapons as promised.

All weapons states have experience of dismantling warheads and disposing of their innards. But doing that to the satisfaction of all without unintentionally giving away weapons secrets would need careful preparation (so far only the British government has published thoughts on how this might be done). The difficulties affect not only the nuclear states. All other states that have produced potentially weapons-usable uranium and plutonium would have to account for what they had done with the stuff too. Only relatively small quantities—not more than 25 kilos of highly enriched uranium, or eight kilos of plutonium—are required for a bomb.

Such accounting is not easy. South Africa had secretly built several bombs and then dismantled them before joining the NPT in 1991. It had every reason to co-operate fully with the inspectors, but still found it hard to account for every last scrap of material. The inspectors faced other problems in Iraq in the 1990s, when Saddam Hussein deliberately sought to deceive them. And not just America, Russia, Britain, France and China, but also India, Pakistan, Israel and North Korea—and others that have fallen under suspicion of weapons dabbling—would have to be cajoled to allow fine-tooth-comb inspections.

Countries that have signed the NPT also have the right (so long as they keep its anti-proliferation rules) to enjoy the peaceful benefits of nuclear energy, a right Iran claims justifies its uranium and plutonium “fuel-making”. But beyond a certain point—one that Iran is rapidly approaching—the only difference between a civilian and a military nuclear programme is one of intent. Given that difficulty, a report last year on “Universal Compliance” by the Carnegie Endowment for International Peace, a think-tank in Washington, DC, wondered whether even fuel-making for nuclear reactors would be feasible in a world without nuclear weapons.

Putting it another way, can disarmament ever work in a world where potentially weapons-usable technologies are scattered around with civilian labels on them? Ways are being explored—through market mechanisms, international fuel banks and the like—to ensure that countries with civilian nuclear reactors can receive reliable supplies of fuel without the need to make it themselves. Proliferation-safer (none is entirely secure) reactor designs are also being developed. Yet solutions to many of these problems will be many years in coming.

Chemicals, bugs and missiles, too

Human ingenuity may yet find answers to these technical questions. But could a transition to a nuclear-freer world be safely managed, politically and militarily?

Since verification will never be flawless, a consensus would have to be forged and then relied on to enforce better compliance with the NPT, a test ban, a fissile-materials control regime, and the conventions banning both chemical

and biological weapons. For if these supporting treaties cannot be upheld, there is little chance that a nuclear ban will ever be considered. NPT outliers will also have to be prevailed upon not just to halt but to roll back their weapons production. And a moratorium on the use of nuclear weapons is unlikely to inspire confidence without one on missile testing—and the eventual elimination of missiles from arsenals too.

Then there is the problem of what would constitute zero. Some argue that a residual nuclear capability would always be needed to defend against a breakdown in controls and a break-out by one or more countries. In an imperfect world, deterrence of some sort would be necessary, if only to avoid making it safe for the sort of mass conventional warfare that blighted the first half of the 20th century. But how might this be done, and by whom?

Without convincing answers to such questions, nuclear disarmament, a dream for some, looks more like a nightmare to others. There are incremental steps that can be taken towards that goal. But simply demanding it, without a readiness to tackle the practical problems raised by it, ensures that it will never happen.

Copyright © 2006 The Economist Newspaper and The Economist Group. All rights reserved.

Death and taxes

Gilding the elite

Jun 8th 2006 | WASHINGTON, DC
From The Economist print edition

Corbis

Whatever its outcome, the battle in Congress over the estate tax bodes badly for America's fiscal future

Get article background

WHAT weighty issues were preoccupying America's Senate this week? Soaring health-care costs perhaps, or the fiscal consequences of retiring baby-boomers? Dream on. The country's top lawmakers argued about a constitutional amendment to ban gay marriage, which had no hope of passing; a daft law to give native Hawaiians their own government; and repeal of the estate tax, a levy that affects only the richest 0.5% of Americans.

These skewed priorities may be blamed on Bill Frist, the Senate majority leader, who sets the agenda and is an aspiring presidential candidate. To bolster his appeal to the Republican Party's conservative base, he has been pushing for votes on issues the right cares about: flag-burning, gay marriage and, above all, getting rid for ever of the estate tax.

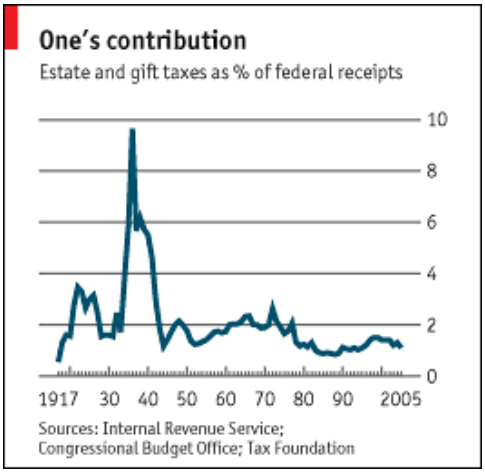
America has had this tax, a levy on the transfer of large fortunes between generations, since 1916. Like Britain, America taxes the estate of the deceased; most other countries which impose such a tax target heirs and their inheritances. The estate tax affects very few Americans (never much over 2% in recent decades, and now far fewer). In the late 1990s it generated just over 1.5% of all tax revenue, or around 0.3% of GDP. Conservatives long for its abolition, which is now tantalisingly close.

George Bush's 2001 tax cuts created a paradox: the estate tax is in terminal decline, but only temporarily so. Under current law, only estates worth more than $7m for a couple will be taxed in 2009 (compared with a joint exemption of $1.35m in 2000). In 2010 the tax goes altogether. But since all Mr Bush's tax cuts technically expire in 2011, the abolition lasts only one year. In 2011 the estate tax returns to its pre-Bush form.

This mess clearly needs fixing, if only to avoid a surge in suspicious deaths in Palm Beach in 2010. But how? The House of Representatives has voted several times to make repeal permanent. The Senate meant to do so last year, until Hurricane Katrina's havoc made it look too callous to give a big tax break to multi-millionaires.

As *The Economist* went to press, it was not clear whether Mr Frist would succeed this time. Several Democratic senators support the tax's abolition, but a handful of Republicans think full repeal is too expensive. By one estimate, repealing the estate tax would reduce federal revenues by some $776 billion, or around 0.4% of GDP, between 2012 and 2021. (The costs of repeal are more than the tax actually raises because the bean-counters assume that rich people will shift their assets in a way

that reduces income taxes.) One possibility is a “compromise” proposal that would increase the exemption per couple to $10m and cut rates to 15%, a combination that would, in fact, cost almost as much as repeal. Even ardent Democrats agree that a big chunk of estate-tax relief must be kept permanently, perhaps by setting the rates and exemptions of 2009 in stone. That would cost “only” 40% as much as full repeal.



The eve of the baby-boomers' retirement seems an odd time to abandon a small, but significant, source of tax revenue. If the tax permanently raised 0.3% of GDP, for instance, it would fix about half the hole in Social Security, the public pension plan. And with income becoming ever more concentrated among America's richest—since 1980, the share of overall income going to the top 1% has doubled from 8% to 16%—it seems an odd time to abandon the country's most progressive tax.

Both these decisions could be justified if America had an honest debate about its tax system. Inheritance taxes are not essential to a progressive tax code; several OECD countries, including Sweden, Italy, Australia and Canada, have abolished them. The trouble is that America has had no such debate. Disinformation and distortion obstruct all sensible tax reform.

As Michael Graetz and Ian Shapiro point out in “Death by a Thousand Cuts” (Princeton University Press, 2005), the enemies of the estate tax—a clutch of anti-tax activists, small-business and farm lobbies and conservative think-tanks—have convinced a majority of Americans that this is a “Death Tax”, an unfair and ghoulish levy that forces the liquidation of countless farms and small businesses. This is nonsense. A study by the Congressional Budget Office shows that in 2000 (ie, before the recent evisceration) only 1,659 farms and 485 small business were liable for the estate tax, almost all of which had sufficient liquid assets to pay it. The rest can stretch their tax payments over many years.

Debate about the tax's economic consequences has been similarly skewed. Economists generally grade taxes on three criteria: simplicity, efficiency (ie, how much they influence people's incentives to work or save) and fairness. Most taxes involve a trade-off between efficiency and progressivity. The estate tax is accused of failing on all three grounds. Compliance fees are as high as the revenue it generates; it costs the economy millions of jobs in foregone investment; and it unfairly taxes hard-earned gains twice. These claims are mostly exaggerated or misleading.

Complicated, inefficient, but fair

Thanks to its myriad exclusions, the estate tax is complicated—a failing that could be solved by scrapping loopholes. It does affect the behaviour of the very rich; one of the best studies, by Joel Slemrod of the University of Michigan and Wojciech Kopczuk of Columbia, found an inverse relationship (though not a strong one) between estate-tax rates and the size of taxable estates. It was not clear whether rich people were simply shifting assets to avoid the tax, or saving less. Whether estate taxes reduce saving depends on why people leave bequests and what effect the prospect of an inheritance has on the next generation's thrift. Few economists would call the estate tax efficient, but there is little hard evidence that it does great harm.

Where the estate tax scores well is in its progressivity. Although it is not perfect— average tax rates for the biggest estates are often lower than for smaller ones—the tax is paid only by the wealthy. More important, it is a meritocratic tax. It was introduced, in part, to avoid excessive concentrations of wealth, a rationale now barely mentioned in the debate. Teddy Roosevelt argued that the transmission of vast fortunes between generations threatened to create a permanent aristocracy and, moreover, ruined the characters of the undeserving heirs. Perhaps the competitiveness of the global economy will prevent today's fortunes becoming entrenched. But with America's income concentration at the top back to the levels of the Gilded Age, meritocratic arguments would seem to apply as much as ever.

The estate tax, in short, may not be ideal. But its abolition—especially without finding revenue elsewhere—should not be the chief item on the policy agenda. If America wants to maximise national saving, it should keep the tax and reduce the budget deficit. If productive investment is the aim, what about eliminating the mortgage-interest deduction, the vast subsidy that encourages Americans to buy houses rather than invest in productive assets? That would also raise revenue and even make the tax code fairer. Sounds like a winner, except in a country where spin and prejudice drive the debate.

Copyright © 2006 The Economist Newspaper and The Economist Group. All rights reserved.

The primary season

Reading the tea-leaves

Jun 8th 2006 | LOS ANGELES
From The Economist print edition

Republican relief in the latest round, but maybe not for long

Reuters

COME November and the mid-term elections, will voter discontent with the Bush administration lead to the Democrats retaking the House of Representatives or even the Senate? Or will they fluff their best chance of regaining power in a decade? Corruption, immigration and, to a lesser extent, family values were all at issue in Tuesday's primary races in eight states across the country. But a read of the electoral tea-leaves makes one thing clear: it is very difficult to unseat an incumbent.

In Montana, for example, Conrad Burns, a Republican senator, won nomination for a fourth term despite close ties to Jack Abramoff, a corrupt and now disgraced lobbyist. Likewise, in California's fourth congressional district, John Doolittle, an eight-term incumbent close to Mr Abramoff, easily defeated his opponent. And in Alabama, where a measure to ban gay marriage passed by a margin of 4-1, Governor Bob Riley easily saw off a challenge for the Republican nomination from Roy Moore, a former Alabama chief justice who became a hero of the religious right by refusing to remove from his courthouse a monument to the Ten Commandments.

The most intriguing result came in California's 50th congressional district, where—to the huge relief of Republicans—Brian Bilbray defeated the Democrats' Francine Busby in a special election to replace a Republican, Randy “Duke” Cunningham, now in prison after his sentencing in March for accepting bribes on a scale that shocked even the most cynical of his colleagues in Washington.

Yet Republican relief may be temporary. Two years ago, in what has traditionally been one of the party's safest districts, Mr Cunningham beat Mrs Busby by a hefty 22 percentage points; this time, Mr Bilbray won by only five points, and Mrs Busby is vowing to repeat her challenge in the mid-term elections in November.

Similarly, the Republicans cannot feel entirely comfortable in California's 11th district. There Richard Pombo, an amply-financed seven-term incumbent with past ties to Mr Abramoff, handily defeated in the Republican primary Pete McCloskey, a 78-year-old former congressman who came out of retirement to attack Mr Pombo as a corrupt despoiler of the environment. But Mr Pombo, who was unopposed in the 2004 primary, appears to have won less than 63% of the vote, so he too will be vulnerable in November.

Arnold is back

The Republican who can feel happiest with Tuesday's results is probably Arnold Schwarzenegger. A year ago, the California governor's approval ratings had slumped low enough for the Democrats to deride him as a one-term governor. Indeed, according to a Field poll released this week, still only 41% approve of the job he is doing. Yet in this week's primary the Democrats narrowly chose as their gubernatorial candidate Phil Angelides (pictured above), the California state treasurer and a former property developer who, according to another recent Field poll of likely voters, would lose to Mr Schwarzenegger in November by some seven points. His rival, Steve Westly, the California state controller and a former eBay executive, would in theory have lost to Mr Schwarzenegger by just two points. Add some more governor-like behaviour from Mr Schwarzenegger, and a sustained effort to mend relations with Latino voters upset by his praise last year for anti-immigrant “Minutemen”, and his hopes of a second term look reasonable enough.

Conventional wisdom says that most Americans prefer to vote for moderate-minded centrists. But will they be given that choice in November? In Montana, a leftist “netroots” campaign for the Democrats' Senate nomination helped Jon Tester trounce John Morrison, the establishment favourite. Similarly, while Mr Westly publicly aimed for the centre, it was Mr Angelides, on the union-backed left of the California party, who won. As for the Republicans, the evidence from their primaries is that the best way to persuade the base to turn out to vote is to stoke their fears of illegal immigration and the decline of family values. After all, it was not by coincidence that the primaries

coincided with the Senate debate on gay marriage.

Copyright © 2006 The Economist Newspaper and The Economist Group. All rights reserved.

South Carolina

Sub-standard

Jun 8th 2006 | COLUMBIA
From The Economist print edition

Should tax money go to deprived children, or to a museum piece?

ONE day this spring, a group of youngsters travelled in battered yellow school buses to the South Carolina legislature in Columbia. They went there to show photographs they had taken of their shockingly dilapidated school buildings in rural parts of the state. The pictures showed dripping ceilings, creeping mould, filthy drinking fountains, smashed toilets, makeshift heating and air-conditioning units, rat droppings, and rat poison left lying around. By displaying these, the children hoped to persuade legislators to spend more money on the state's schools.

Their campaign included a film, “Corridor of Shame”, which documents the dreadful condition of many of South Carolina's rural schools. The film has been shown on statewide television and in cinemas. But 12 years after 40 rural school districts filed a lawsuit alleging unequal school funding, a circuit judge ruled late last year that South Carolina had no obligation to repair tumbledown facilities or raise teachers' pay. The state does, however, have to spend more money on early childhood education. (In New York, Alaska, Georgia and Montana there have been similar rulings in school-funding cases that challenged the government's role in education.)

Decrepit buildings are only part of the problem. South Carolina is 49th among the 50 states in overall high-school SAT scores (which colleges use to determine admissions), and lowest in its high-school graduation rate. Among more general indicators, teenage pregnancy, infant mortality and child-poverty rates are all considerably higher than the national average. South Carolina's unemployment rate in April, 6.6%, was the fourth-highest in the country, and in some of the state's poorer, majority-black counties it is approaching 13%. Last year the state's income per head was eighth from the bottom of the state rankings.

So what are South Carolina's legislators doing with taxpayers' money? Not spending it on health care for the poor; legislation that would have raised the cigarette tax for that purpose (it is currently the lowest in the country, at seven cents a pack) was recently voted down. Instead, South Carolina is said to be planning to spend nearly $100m, which would more than cover the cost of most of the state's public projects, to preserve and display a civil-war submarine called the *Hunley*.

This innovative machine, which was propelled by manpower, was the first submarine ever to sink an enemy ship in wartime, in February 1864. Having dispatched to the bottom a Union ship called the *Housatonic*, she mysteriously disappeared immediately afterwards. In 1995 she was discovered in 18 feet (six metres) of water in Charleston harbour, and in 2000 she was raised. The skeletons of her eight-man crew were still on board.

It now appears that Glenn McConnell, a powerful state senator from Charleston, has been quietly funnelling state, federal and private money into the *Hunley* project outside the usual budget channels. Mr McConnell has made no secret of his passion; he dresses up in Confederate uniform and runs a civil war memorabilia shop. But his fund-raising is another matter. Mark Sanford, South Carolina's governor, has admitted he had no idea about the projected costs in the pipeline for the *Hunley*, and neither did most of Mr McConnell's fellow legislators. Nine state House representatives have now demanded an audit by the Legislative Audit Council, a state watchdog agency, of the public funds handled since the late 1990s by the Hunley Commission, which Mr McConnell chairs. He, of course, objects.

South Carolina's taxpayers are aghast at what is being proposed. But Mr McConnell argues that the restored submarine will be a big draw for Charleston, where civil war battles are regularly re-enacted and where the *Hunley* crew was buried in a ceremony in 2004. To date, only $13.8m in state, local and federal money has actually gone to *Hunley*-related projects, with another $15.5m committed.

Fittingly, if the Hunley Museum opens as planned seven to ten years from now, it will be close to Fort Sumter in Charleston, where the shots that began the civil war were fired in April 1861. It also won't be far from some of those poor rural schools that may still be falling apart.

Copyright © 2006 The Economist Newspaper and The Economist Group. All rights reserved.

The Golden Gate Bridge

Deadly beauty

Jun 8th 2006 | SAN FRANCISCO
From The Economist print edition

Making suicide less easy might be a good idea. Discuss

Getty Images

Too easy to jump from

KEVIN HINES, a manic-depressive, was 19 and in one of his weekly downswings on an overcast Monday morning in 2000. He went to the nearby Golden Gate Bridge to kill himself mostly because, with only a four-foot (1.2-metre) railing to leap, “I figured it was the easiest way.” He dived over, but flipped and hit the water at 75mph with his feet first. His legs were crushed, but he somehow stayed conscious and started paddling with his upper body until the Coast Guard fished him out.

Mr Hines is one of 26 people who have survived suicide attempts at the bridge, but 1,223 are known to have succeeded (ie, were seen jumping or found floating). People are throwing themselves off the bridge at the rate of two a month, which makes it the most popular place in the world for suicides. One book on the subject says that the Golden Gate is “to suicide what Niagara Falls is to honeymooners”.

Many San Franciscans think that the solution is to emulate the Empire State Building, the Sydney Harbour Bridge, the Eiffel Tower, St Peter's basilica and other such places and put up a simple barrier. This, however, is a decision for the 19 board members of the Golden Gate Bridge, Highway and Transportation District, an entity that oversees the bridge itself and the buses and ferries that operate in the area. Most of its revenues comes from tolls and fares, and the district loses money. A barrier would cost between $15m and $25m.

So the Psychiatric Foundation of Northern California, which has adopted the barrier as its cause, considers it a success that the board has merely allowed a feasibility study, for which various private and public donors have raised $2m. Mel Blaustein, a director at the foundation, has heard several arguments against a barrier over the years—too ugly, too expensive, and so forth—but the most persistent has been that people would simply kill themselves somewhere else, so why bother? This is nonsense, he says; “Most suicides are impulsive and preventable.” A bridge without a barrier, adds Pat Hines, Kevin's father, is “like leaving a loaded gun in the psychiatric ward.”

Copyright © 2006 The Economist Newspaper and The Economist Group. All rights reserved.

New York pets

Dog days

Jun 8th 2006 | NEW YORK
From The Economist print edition

Paws are no longer good enough for the Big Apple's streets

IF YOU, as a human, think it is hard to hail a cab in New York, just imagine what it is like if you are a dog. Or, to be more precise, imagine what it was like, because now New York dogs have acquired what they have been panting for since the city began: a pet chauffeur.

Like many clever businesses, this one emerged from a customer's most desperate need. A decade ago, David Lang bought an old station wagon and began delivering food and medicine from vets to their clients. Before long, veterinarians were requesting Mr Lang to do a return trip with ailing pets. So Pet Chauffeur was born.

New York swarms with dogs that have wealthy absentee owners. Mr Lang fills the gap, and it is a very, very, large gap. His old station wagon has been junked, replaced by a fleet of seven specially equipped mini-vans (with dog seatbelts). Given a moment of free time, an eighth would be added.

Mr Lang's office resembles a war room. The front wall is taken up by a vast erasable white board, staffed by two employees who constantly rub out and add new requests to each driver's schedule. Telephones ring constantly. Mornings and evenings are always packed, as is lunchtime, as are rainy days (when, Mr Lang says, it really does rain cats and dogs). Conversations with Mr Lang, beyond a few key questions to confirm street and time, are impossible. He has 10,000 clients, including many celebrities (dog confidentiality precludes disclosing their names), and more are constantly being added.

Medical runs to the vet are now just a tiny part of the business. Several owners use Pet Chauffeur to commute with their dogs to work in fancy midtown offices. An extensive dog social network also exists. They are picked up for afternoon “play-dates” with friends, or for dog birthday parties (Pet Chauffeur provides cakes). For dogs lacking close friends, there are more than a dozen designated dog parks in the city where new acquaintances are usually available, and Pet Chauffeur knows them all. Two days a week, it runs a shuttle to a dog resort in a suburb. And, for those hot days, it frequently transports clients to a dog pool on Ninth Avenue.

Naturally, competition has emerged, but such is the demand that the various firms work together during peak hours, referring customers. Prices are, inevitably, higher than for the average human but, of course, to the owners, these passengers are more valuable. They begin at more than $30 for a short hop, and can reach $200 for a trip from Manhattan to Newark airport. None of his riders, says Mr Lang, ever complains.

Copyright © 2006 The Economist Newspaper and The Economist Group. All rights reserved.

Private forests

Et in Suncadia ego

Jun 8th 2006 | SEATTLE
From The Economist print edition

A new breed of investor is taking over America's forests

Get article background

THE tiny town of Roslyn, 90 minutes' drive east of Seattle, clings tight to its coal-mining and timber-cutting past. In future, that may be harder. As many as 3,000 expensive houses, interspersed with golf courses and resorts, are planned for the hills surrounding Roslyn, dwarfing the town's few hundred dwellings.

Those hills were once covered in forests owned and managed by the Plum Creek Timber Company, which is based in Seattle. But as development land became increasingly valuable, Plum Creek sold the land around Roslyn to two other companies. These are now busy planning the new community, which is to be called Suncadia.

Across America, vast swathes of land may go the same way. Since 1900, when Frederick Weyerhaeuser, a German immigrant, and 15 partners purchased 900,000 acres (364,217 hectares) of land from a railway company in Washington state, big timber enterprises have held land for decades. They harvested trees for lumber or paper pulp, replanted, and patiently waited for another harvest in 50-60 years. It was a conservative, relatively safe business; the demand for wood and paper, although it has ups and downs, has remained generally strong. Investments in timber land proved a good hedge against inflation, and often did well when stocks on Wall Street fared poorly.

Now all that has changed. New tax rules, demand for building land and the influence of big investors such as pension funds have transformed the ownership of forest land. In recent years most tree-owning and lumber companies have sold their land to Timberland Investment Management Organisations (TIMOs), in which private investors pool together to buy timber holdings. Forest-products companies then buy trees from the TIMO-owned land and convert them to lumber or paper. In early April, for instance, International Paper, which is based in Connecticut, sold its 5.1m acres of American timber land for $6.1 billion to two TIMO investor groups.

Other companies, such as Plum Creek, have become publicly owned real estate investment trusts (REITs), which are also attractive to investors and reduce corporate tax. Plum Creek now owns more than 8m acres of forest land and reaps profits from timber, property and minerals. Today only two large publicly traded forest-products companies—Weyerhaeuser, based just outside Seattle, and Temple-Inland, based in Austin, Texas—still have substantial forest holdings. (Weyerhaeuser owns or leases 6.5m acres in the United States, Temple-Inland owns about 2m.)

Since 1996, 30m acres of private forest lands have changed hands, causing turmoil in the industry. Some of those most disturbed by the trend are the same greens who bitterly fought logging on federally owned lands during the 1980s and 1990s. They admit that logging in private forests, too, often wrecked the landscape. But companies such as International Paper were also diligent about re-planting trees and creating new forests that became valuable wildlife habitat and sources of clean water. Moreover, in many parts of the United States, timber companies allowed local people to hike, hunt or fish on their lands, a tradition greens fear may be lost.

The biggest current battle on this front is taking place around Moosehead Lake in northern Maine. Plum Creek owns 421,000 acres around the 117-square-mile (30,303-hectare) lake, and would like to build as many as 1,000 houses, as well as lakeside resorts. The development would “fundamentally change the character of Moosehead Lake”, now a quiet, rural region of hunting and fishing cabins, says Pete Didisheim of the Natural Resources Council of Maine. Plum Creek counters that it is also preserving vast tracts of land around the lake. Critics, unconvinced, are fighting a rezoning proposal which the company needs to proceed. In many other parts of the country there is fear that new forest owners will quickly log their land, then sell the denuded ground for housing.

Others see opportunity as forest ownership changes. In Wisconsin, for instance, the Nature Conservancy and the Department of Natural Resources negotiated an agreement under which investors bought 101 square miles of land from International Paper as part of that company's big woodlands divestiture earlier this year. The land will continue to produce maple, oak and cherry lumber—all very valuable—while also remaining open for recreation and wildlife conservation. “Because these forested areas are for sale, it's a great opportunity to buy them for preservation and sustainable forestry,” says Bill Ginn, who works on forestry matters for the Conservancy. Groups

such as Mr Ginn's also hope to make state tax rules more favourable to owners of forests.

No doubt, in years to come, some of the forests' new owners will opt for a quick and dirty profit from their lands, selling to Boston or Seattle residents who want a place in the (former) woods. But trees were wiped out across much of the United States during the agricultural and economic expansion of the 1800s, and managed to grow back. Perhaps the natural patience of forests will prevail.

Copyright © 2006 The Economist Newspaper and The Economist Group. All rights reserved.

The National Spelling Bee

Struggling towards Ursprache

Jun 8th 2006 | WASHINGTON, DC
From The Economist print edition

A peculiarly North American entertainment

IN BASEBALL, you get three strikes. But at a spelling bee, one misplaced letter means you are O-U-T. That makes for a gripping contest, which is why two movies—"Spellbound" and "Akeelah and the Bee"—have been made about this all-American institution. And last week, for the first time in its 81-year history, the final rounds of the Scripps National Spelling Bee were broadcast live on prime-time network television.

The struggle began with 10m spellers, all under the age of 16. Regional bees, mostly sponsored by local newspapers, whittled the number down to 275. This battle-hardened group came to a posh hotel in Washington, DC, for the final. By the time ABC started broadcasting, only 13 Uber-spellers remained. The pressure was excruciating, and not just for the parents.

Reuters

Just a hint, please God

At a press conference before the broadcast, the children sat on the stage and discussed nerves, training regimens and the shock of seeing the favourite ejected in round seven. Samir Patel, a 12-year-old home-schooler from Texas (under "school", his biography lists the "Patel Achievement Academy"), came second last year. But this year he stumbled on "eremacausis". As probably none of the adults in the audience knew, this means: "gradual oxidation from exposure to air and moisture, as in the decay of old trees or of dead animals." Any word in Webster's "Third New International Dictionary" may come up, which explains why, as the contest goes on, the testing terms tend to get more foreign.

With Samir eliminated, the new favourite was Rajiv Tarigopula, a son of two doctors who came fourth last year. (Asian-Americans tend to do particularly well in the Bee; in 2005, they took the top four places.) Was Rajiv happy to see his rival eliminated, asked a callous journalist? "No," said Rajiv, "it's a competition against the words, not the people." This noble sentiment won him a round of applause.

Striding up to the microphone and coolly rattling off words that would baffle a polymath, Rajiv looked like a winner. But he tripped on *Heiligenschein* and came fourth again. The final duel was between two girls. Finola Mei Hwa Hackett, a Canadian, was perhaps lucky to be given so many French words, but her nerve failed her on *Weltschmerz*, which she began with a "v".

Thirteen-year-old Kerry Close of New Jersey then had to spell *kundalini* and *Ursprache* to win. When the pronouncer pronounced the last word, the look on Kerry's face told 8.5m viewers that this was one she had revised. She nailed it. The crowd, especially her mother, were ecstatic.

It was a great show. Which makes one wonder, as with so many North American sports: why do only North Americans play it?

Copyright © 2006 The Economist Newspaper and The Economist Group. All rights reserved.

Lexington

The odd man out

Jun 8th 2006
From The Economist print edition

America's coolness towards football is another example of American exceptionalism

Get article background

FOR the next month the world will be engaged in the closest thing yet found to a universal religion—watching football (or soccer, as Americans call it). From the mansions of Pimlico to the *favelas* of Rio de Janeiro, everyone but a few eccentrics will stop what they are doing in order to watch teams of young men trying—usually without success—to get a ball into a net. The World Cup will be broadcast to 5 billion people in 189 countries.

Amid this global fervour the United States will stand out like a temperance preacher at a *Bierfest*. Football is not quite the non-sport that it once was. The American team is not bad. There are a few pockets of football enthusiasts, mostly in posh suburbs and Latino-crowded inner cities. Fans will be able to follow the game without resorting to Spanish-language channels. But football still remains a distant also-ran behind American sports such as baseball, basketball, hockey and American football (in 2002 only 3.9m Americans watched the World Cup final, compared with 95m who watched this year's Super Bowl). The country that dominates the world's popular culture is hopelessly marginal when it comes to the world's most popular sport.

America's marginality is underlined by its failure to export its own sports. Baseball is popular in Japan and Central America, and basketball has recently become a craze in China; but that is a pretty poor record compared with the British Empire's success in exporting one of the world's most idiosyncratic games, cricket. The National Football League has singularly failed to convert Europeans to American football, despite decades of investment (this year's World Bowl attracted only 36,000 spectators). At a time when the world is obsessed with such icons of American popular culture as Brad Pitt and Angelina Jolie, nobody outside America gives a damn about Barry Bonds or LeBron James.

America is perhaps the only country that greets the World Cup with an orgy of football-bashing. In 1986 Jack Kemp took to the floor of Congress to contrast “European socialist” soccer with “democratic” and “capitalist” American football. In 2003 a blogger even pointed out that a leading al-Qaeda terrorist had been a European soccer player: “You don't see any former NFL players or Major League baseball players joining al-Qaeda, do you?”

This year is no different—though, for the time being at least, the focus of moral outrage has shifted from hooliganism to sexual depravity, with commentators fixating on Germany's willingness to provide “sex garages” and “mega-brothels” to slake the lusts of depraved football fans. On June 6th Tim Parks, writing in the *Wall Street Journal*, argued that the competition was “born out of cheating” before giving Uncle Sam a pat on the back: America finds it hard to get involved in this game of “world domination” because it is too busy with the “real thing”.

Yankee hostility to football draws on deep wells of both patriotism and populism. The history of assimilation has been one of abandoning foreign sports (primarily football) in favour of American pastimes. The sons of football-playing parents knew that they had become good Americans when they could quote the batting average of left-handed Yankee players in losing seasons. More recently, football has become embroiled in the culture wars. The most prominent supporters of football, apart from new immigrants, are overclass parents who want their little darlings to play a civilised foreign game rather than the lumbering American performance that bears the same name.

If the World Cup is an opportunity for football-bashing in America, it is also an opportunity for America-bashing in the rest of the world. Budweiser has tried to make a joke of America's weakness as a football power with the slogan “You do the football, we'll do the beer”. But for many Europeans football is not a joking matter. Andrei Markovits, a professor at the University of Michigan and the author of “Offside: Soccer and American Exceptionalism”, argues that Europeans are in a mood of “constant irritation” when it comes to America and football. Americans, they grumble, either fail to embrace the “beautiful game” or, when they do, get it wrong. How dare they turn it into a women's game! And how dare they insist on calling it “soccer”! Germany has been in high dudgeon for months over the fact that the national coach, Jürgen Klinsmann, is an Americanophile who lives in Los Angeles and has employed American fitness-trainers and a psychologist to help prepare the team.

The offside rule

Behind all this lies a bigger debate about America's cultural idiosyncrasy. Americans like to think of themselves as global trendsetters and standard-makers. But a raft of opinion polls since the Iraq war have demonstrated that America is not so much a trendsetter as an outlier—more individualistic, more religious, more nationalistic, more anti-government and more gung-ho about the use of force than other countries.

This evidence of American exceptionalism has provoked a fierce debate within the United States between “red” Americans, who are proud of their country's oddness, and “blue” Americans (mostly Democrats), who think that America should pay more attention to the rest of the world. It has also provoked an even fiercer backlash in other countries against America's “weird” values, such as its support for the death penalty and its predilection for unilateral action.

It is possible that American exceptionalism may wane in the next few years, particularly if the Democrats can recapture the presidency. Unilateral action is out of fashion, thanks to the Iraq mess. But when it comes to sport, American exceptionalism looks more enduring. It is hard to imagine America's indigenous sports being forced to cede much ground to soccer, short of a dramatic victory by the national team in July; and it is impossible to imagine the rest of the world abandoning their beloved footballs for pigskins or baseball bats.

Copyright © 2006 The Economist Newspaper and The Economist Group. All rights reserved.

The Toronto terror plot

The plan to behead the prime minister

Jun 8th 2006 | OTTAWA
From The Economist print edition

AP

How not to be Canadian

IT HAS long been an article of faith among Canadians—just as it once was among Britons—that their commitment to an easygoing multicultural society protects them from home-grown Islamist terrorism. That belief was shattered this month when police charged 12 men and five youths with planning a wave of attacks, ranging from blowing up the Toronto Stock Exchange to storming the national public broadcaster and the Parliament buildings in Ottawa—and beheading the prime minister.

All of the suspects involved were Canadian Muslims from the Toronto area, most of them of South Asian origin and two from Somalia. That prompted comparisons with the made-in-Britain London bombings of last July. This time, at least, the plot was foiled. An anti-terrorist squad from the Royal Canadian Mounted Police arrested 15 of the 17 on June 2nd. In a police sting operation, the suspects were held as they took delivery of three tonnes of ammonium-nitrate fertiliser which, the authorities say, they planned to use for bomb-making. The other two were already in jail, accused of smuggling weapons from the United States. Several of those arrested were worshippers at a shopfront mosque in Mississauga, a middle-class suburb of Toronto. The imam was the suspected ringleader.

Even undetonated, the bombs sent shock waves not only across Canada but also across its southern border. They have prompted questions about immigration policy and the official approach of fostering diversity rather than integration. They are also likely to sharpen debate about the deployment of Canadian troops in Afghanistan, whose removal, it seems, would have been one of the main demands of the accused. In the United States, some pundits were quick to seize on the arrests as proof that Canada was a safe haven for terrorists and as justification for tighter border security.

The arrests were not a complete surprise. The previous week, Jack Hooper, a senior officer of the Canadian Security Intelligence Service, told a parliamentary committee that up to 60 groups and about 350 individuals were under surveillance because of suspected terrorist leanings. “All of the circumstances that led to the London transit bombings, for example, are now resident in Canada,” Mr Hooper said. Although Canada had not suffered a significant act of terrorism since the bombing in 1985 of an Air India flight from Montreal, which killed 329 people, he said that there was no room for complacency.

Stephen Harper, the prime minister, has shown no inclination to make political use of the incident, which may dampen its impact. He joked about the threatened beheading, saying he could live with such threats “as long as they don't come from my own caucus.” Peter Donolo, a political analyst, points out that if Mr Harper's Conservative Party is to turn its current minority status into a majority at the next election, it needs to win seats in cities that are home to large numbers of immigrants. Playing the race card, something Mr Harper might have been inclined to do in opposition, is not the way to do that.

Mr Harper also knows that Canadians strongly support immigration, even though the proportion of foreign-born residents is among the highest in the world. A survey last month by Ipsos, a polling company, found that 75% of respondents believed immigrants had a good influence on their country, compared with only 54% in Australia, 52% in the United States and 43% in Britain. While suspicion of Muslim immigrants will now doubtless rise, it may not do so by much. “Canadians are cautious and careful about pointing fingers. It is our nature,” says John Wright of Ipsos.

The attack is unlikely to cause Mr Harper to change policy towards Afghanistan, where Canada has some 2,300 troops, mostly engaged in security duties in the violent southern province of Kandahar. They were sent by the previous Liberal government, but Mr Harper recently sought and won a vote in Parliament to keep them there until 2009.

The United States raised its state of alert on the Canadian border. But Condoleezza Rice, the secretary of state, hailed the arrests as “a great success” for Canada's counter-terrorism efforts. Co-ordination on counter-terrorism between the two countries is “excellent”, she said. Christian Leuprecht, a security analyst at Canada's Royal Military College, suspects that American officials were tipped off in advance, giving them time to prepare their response. He says that, far from straining cross-border relations, the arrests will tend to persuade many in Washington, DC, that Canada is taking terrorism seriously.

That may not stop some American politicians from making the most of a supposed threat from flabby, liberal Canada. In 1999, an Algerian-Canadian was held when he crossed the border in a car containing explosives and timing devices; he was jailed for planning to detonate a suitcase bomb at Los Angeles International Airport. After the terrorist attacks of September 11th, American officials temporarily imposed strict checks on vehicles crossing the border. The latest incident has probably put paid to already slender Canadian hopes of exemption from a law due to take effect in 2008 that will require Americans to hold a passport, rather than just a driving licence, to cross land borders.

Canada remains one of the world's most tolerant countries. Yet it would be naïve to imagine that nothing will change. Parliament is reviewing its own security precautions. For now, however unjustly, a cloud of suspicion hangs over the country's 750,000 Muslims (2% of the total population). A mosque was vandalised after the arrests, and more such incidents may follow. “This is supposed to be a free and democratic society. You are supposed to be innocent until proven guilty,” complained the father of one of the accused. But Canada was also supposed to be a country where the prime minister ran no risk of losing his head.

Copyright © 2006 The Economist Newspaper and The Economist Group. All rights reserved.

Venezuela's foreign policy

Bruised but unbowed

Jun 8th 2006 | CARACAS AND SÃO PAULO
From The Economist print edition

A setback in Peru does not presage the end of Hugo Chávez's regional influence

Get article background

"TONIGHT, the country has sent a message of sovereignty and national independence and defeated Señor Hugo Chávez's efforts to incorporate us in his expansionist strategy," declared Alan García after narrowly winning Peru's presidential election. Never before has Mr Chávez, Venezuela's radical populist president, intervened so blatantly in an election in a neighbouring country as he did on behalf of Ollanta Humala, the defeated candidate in Peru, who like himself is a nationalist former army officer. Of Mr García, he said last month: "I pray to God that he won't become president." He threatened to break diplomatic relations with Peru if he did.

So although Latin Americans, like electorates everywhere, tend to vote according to national issues, in this case Mr Humala's defeat—narrow though it was (see article)—was also that of Mr Chávez. But from the perspective of Venezuela's president, who often suggests that he will remain in power for the next 25 years, the setback may only look temporary.

Mr Chávez's overriding aim is to defeat efforts by the United States to isolate his "Bolivarian Revolution". To this end he seeks clients and allies abroad. In this diplomatic battle, Latin America is the main theatre and Venezuela's oil wealth the main weapon. Mr Chávez won an important victory with the election of Evo Morales, a socialist, in Bolivia. In April, Bolivia joined the "Bolivarian Alternative", an anti-American alliance involving Venezuela and Fidel Castro's Cuba.

Venezuela has ramped up aid to Mr Morales's government. Mr Chávez is a frequent visitor to Bolivia. He has instructed its people on how they should reform their constitution, advised Mr Morales on the seizure of foreign-run gas fields, and told the army to prepare for an American-backed plan to overthrow the president. Peru would doubtless have received similar advice had Mr Humala won.

Mr Chávez may not, even now, have given up on Peru. He has often been accused, without proof, of financing not just the campaigns of left-wing parties, but street protests by social movements. If Mr Humala uses his support in Peru's southern Andes to make his country ungovernable, there will be accusations of Venezuelan involvement. In Bolivia, Mr Morales helped bring down two governments before winning December's election.

After the Peruvian rebuff, Mr Chávez still has hopes of gaining a new client in an election in November in another of the smaller Latin American countries: Nicaragua. There, he is supplying cheap fuel to mayors from the Sandinista Front, whose presidential candidate, Daniel Ortega, he supports. Yet there are signs that his meddling may be starting to backfire.

Inside Venezuela itself, Mr Chávez worked to polarise the country into two camps: those who were for him and those who were against. He also built up his power by destabilising those institutions that he could not control and creating new ones which he could. These tactics are now being exported to the regional stage. In the past two months, for example, Venezuela has walked out of the five-country Andean Community and a separate trade pact with Mexico and Colombia. No sooner was Venezuela offered full membership of Mercosur, the trade group based on Brazil and Argentina, than Mr Chávez started telling its smaller members that it should be changed or dismantled.

But not everything is going his way. Brazil is smarting from Mr Morales's nationalisation of natural-gas assets operated by Petrobras, its national oil company. There have been hints—but nothing more—that it may now distance itself from Mr Chávez. Peru's foreign minister said that Brazil was among eight countries that backed its complaint against Venezuela's meddling in its election at this week's meeting of foreign ministers from the Organisation of American States.

Another such hint is a planned bilateral meeting on energy integration between Brazil and Chile. Closeness between these two countries, both governed by the moderate left, is "fundamental" when "we're seeing a series of open and latent conflicts in South America," said Alejandro Foxley, Chile's foreign minister, after meeting his Brazilian counterpart, Celso Amorim.

Brazil may also be cooling to Mr Chávez's pet scheme for a $20 billion pipeline to deliver gas from Venezuela to Brazil and Argentina across the Amazon. Petrobras has been an enthusiastic backer of this project, which is regarded by most others as a white elephant. But the company's president, José Sérgio Gabrielli, now sounds more cautious. He says he sees virtue in a “continental pipeline” uniting several sources of supply and several markets, but adds that this is a project for “the very long run.”

Yet there is still little appetite in the region for breaking altogether with Mr Chávez. He picks his enemies carefully, and stages tactical retreats when necessary. This week Venezuelan officials seemed to back away from the threat to cut relations with Peru, and Mr García struck an emollient note towards Mr Chávez. Brazil says it will back Venezuela for one of Latin America's two rotating seats on the UN Security Council later this year, rather than Guatemala, whose candidacy is backed by the United States. Chile is likely to follow suit. Mr Foxley refuses to criticise Mr Chávez directly. “We've learned in Chile the hard way to live with diversity,” he says. “We will not be judgmental.”

Mr Chávez still has plenty of oil money to dispense. That may not last forever. At a meeting last weekend in Caracas of the Organisation of Petroleum Exporting Countries (OPEC), Venezuela alone called for cuts in production quotas to drive prices higher. Many in the industry say Venezuela was pushing for lower quotas mainly because it cannot meet its existing one. Since Mr Chávez came to power, the output of PDVSA, the state-owned oil company, has slumped by a quarter. But he has burdened the company's engineers with many new commitments, from helping to develop Bolivia's gas reserves to building a refinery in Brazil.

At home, in 2002, Mr Chávez provoked his opponents into a coup which came close to toppling him. Sooner or later, he may make a similar mistake in foreign policy. His foes have reacted with jubilation to Mr Humala's defeat in Peru, seeing the beginning of the end of *chavista* influence in Latin America. Not quite yet.

Copyright © 2006 The Economist Newspaper and The Economist Group. All rights reserved.

Economist.com
WORLD
THE AMERICAS
PRINTABLE PAGE VIEW SPONSORED BY
About sponsorship

Peru

Alan García's second chance

Jun 8th 2006 | LIMA
From The Economist print edition

An opportunity for redemption in a divided country

JUST as the opinion polls had forecast, Alan García defeated Ollanta Humala, his nationalist opponent, in Peru's run-off presidential election, but only by five percentage points. For Mr García, a populist social-democrat, the result offered an opportunity for political redemption after a disastrous previous term as president in 1985-90. In that period, he had to grapple with a broken economy as well as terrorist violence. This time round, the task may be only a little easier.

The vote laid bare Peru's social divide. Mr García triumphed by an ample margin in most coastal regions and in greater Lima. These areas make up modern Peru, a country whose economy has grown at an annual average rate of over 5% since 2002. But Mr Humala won two-thirds of the vote in the southern and central Andes. These have long been the poorest, most backward areas of Peru, where many people are of indigenous descent. Many of them have seen little benefit from economic growth.

In victory, Mr García recognised that his most pressing task is to bridge that divide. He has promised to help peasant farmers in the Andes with more roads and low-interest loans from a beefed-up government bank. He wants to spread to the sierra the success of export farming on the coast, replacing potato crops with artichokes, onions and peppers. He hopes these will find markets in the United States, thanks to a proposed free-trade agreement. This week the outgoing government sent this to Peru's Congress for ratification, but it is fiercely opposed by Mr Humala and by many in the parts of the country where he won.

Implementing all this will be hard. Mr García's APRA party holds only 36 of the 120 seats in Congress. He faces local and regional elections in November. As well as appeasing Mr Humala's angry supporters, he must satisfy the many moderate voters in modern Peru who chose him as the lesser of two evils.

Mr García insists that he will not repeat the mistakes of his first term, marked by a reckless dash for growth, a debt default and a failed attempt to nationalise the banks. He has also pledged to curb his party's appetite for government jobs and corruption. The new president has demonstrated that he has not lost his campaigning skills. What he now has to prove is that he has gained the wisdom to govern effectively.

Copyright © 2006 The Economist Newspaper and The Economist Group. All rights reserved.

Mexico's presidential election

A tie not broken

Jun 8th 2006 | MEXICO CITY
From The Economist print edition

AFP

Obrador and Calderón, neck and neck

A fight to the finish on the economy

IMAGINE six podiums in a room otherwise empty of all but television cameras. It is not a setting that easily calls forth impassioned oratory, particularly when the two candidates with a clear chance of winning Mexico's presidential election on July 2nd had to intersperse their two-minute soundbites with those of lesser contenders. Neither Andrés Manuel López Obrador, a populist, nor Felipe Calderón, a conservative, seemed to land a knockout blow in the second and final televised campaign debate on June 6th. With little more than three weeks to go before the vote, the fight for the presidency has become desperately close and dirty.

Mr López Obrador, a former mayor of Mexico City who is standing for the leftish Party of the Democratic Revolution, lost a two-year lead in the opinion polls after refusing to take part in the first debate in April. He was overhauled by Mr Calderón, of President Vicente Fox's National Action Party, who spent heavily on negative advertising which associated Mr López Obrador with Venezuela's Hugo Chávez and economic chaos. But the electoral authority ruled these ads unfair, ordering them off the air. Recent polls show the two men tied at about 35%.

Most of Mexico's commentariat reckoned that Mr Calderón won the debate. After it, the price quoted by Intrade, an online betting market, for Mr Calderón to win surged to $61, ahead of Mr López Obrador at $43 (the price represents the percentage probability of an event occurring). But it was far from clear whether ordinary Mexicans shared that view.

More and more, the campaign has focused on one issue: the economy. Mr Calderón calls himself “the candidate of jobs”, while Mr López Obrador's slogan is “For everyone's good, the poor first.” Mr Calderón calls for structural reforms to create more jobs, while his opponent wants new social programmes.

“It is not a boxing match,” insisted Jesús Ortega, the head of Mr López Obrador's campaign, before the debate. His man kept his sometimes volatile temper under tight control. But he seemed punch-drunk at times, oddly swaying back and forth. Having been the frontrunner for so long, he seems to have forgotten how to play the challenger.

One important unknown factor concerns how many of the supporters of the long-ruling Institutional Revolutionary Party will abandon its floundering candidate, Roberto Madrazo, and to whom they transfer their support.

Arturo Sarukhan, an adviser to Mr Calderón, says that his man will appear at more mass rallies, which he has

hitherto avoided. Up till now, Mr López Obrador has concentrated his campaign on the “ground war”, with an exhausting itinerary of meetings across the country. His advisers say he will now place more television and radio advertisements where Mr Calderón has dominated. How well each man succeeds on the other's turf may now clinch the election.

Copyright © 2006 The Economist Newspaper and The Economist Group. All rights reserved.

PRINTABLE PAGE VIEW SPONSORED BY

About sponsorship

Afghanistan

The Taliban resurgent

Jun 8th 2006 | GIRISHK AND KABUL
From The Economist print edition

Anxious times for the under-manned Western forces

EPA

Get article background

ACROSS a wide swathe of southern and south-eastern Afghanistan, the Taliban have never looked stronger since they were driven from power by an American-backed alliance in November 2001. And the government of President Hamid Karzai has never looked weaker, controlling only the towns and, during daylight hours, the main roads. The Taliban are not in a position to unseat the government and win the war; not while Western troops remain. Last February, however, General Michael Maples, director of America's Defence Intelligence Agency, told Congress that the Taliban insurgency is growing and presents a greater threat to the Afghan central government's authority than at any point since America's victory.

Contributing to the deep unease about security, and even more insidious, is the existence of a criminal mafia largely funded by the multi-billion dollar drugs trade, whose activities are made easy by endemic corruption. The fact that in many cases the drugs barons hold senior public office discredits the government and its international backers.

“All the promises of the Karzai government and the foreigners are rubbish,” says Lal Hawas, 36, a chemist in the town of Girishk, in Helmand, one of the most wretched of Afghanistan's southern provinces. “In the Taliban time a robber who was arrested would be left hanged for a week in the city as an example. Now if a robber is arrested, he pays a bribe or he has a cousin in the police and he is released.” Another shopkeeper in Girishk, who, like many in the town bazaar, says he supports the Taliban, asks how anything can improve “while the warlords and gunmen in power are supported by the foreigners.”

Belatedly, the Western countries that have committed themselves to saving Afghanistan from further collapse are girding themselves for a new start in the south under the auspices of NATO, which next month will take on responsibility for the four southern provinces. NATO's supreme commander in Europe, General James Jones, has called this the most important mission the alliance has ever undertaken. Some see it as a mission that will either carve out a new post-cold war role for the organisation or, if the alliance stumbles, underline its lack of purpose. So it is alarming that the whole Afghan operation has a make-do-and-mend feel to it.

Under the new plan, the command structure for all foreign forces in Afghanistan, including America's, will be unified, probably early next year, under a NATO headquarters in Kabul. That unity of command will mark a welcome change. At present, there are two Western forces: the International Security Assistance Force, run by NATO, and the American-led coalition, whose job is mainly confined to offensive operations in the south and south-east. But even when they are under one command, the different components will still have different rules of

engagement and different operational objectives. The Americans will still hunt the Taliban and al-Qaeda, while the British, the largest part of the new southern force, will focus on helping Afghan forces with security and long-term development.

Another problem plaguing Afghanistan is perennial: there are not enough boots on the ground. In the autumn, the Americans plan to withdraw 3,000 troops. They, it is true, are due to be replaced by larger numbers from other Western countries, including Canada, Australia, Britain, Romania and Denmark. But the British contingent in Helmand province will still be tiny. It consists of only 800 fighting infantrymen in an area 250 miles (400km) by 250 miles, a battalion fewer than many thought the bare minimum. British commanders say they have enough men to make a difference, adding that support troops, artillerymen, even cooks and clerks, can be pressed into the infantry role if need be. But it looks far from ideal.

General David Richards, the (British) overall commander of the NATO force, insists that fighting troop numbers in the south will eventually more than double. But even then, the planned total of 12 companies or approximately 2,400 fighting soldiers looks small given the vast area they must cover. And despite the big increase in numbers the force is receiving no additional transport helicopters, which will compel it to make greater use of the dangerous roads and, inevitably, expose it to roadside bombs and ambushes.

NATO's plan is to assert control of territory and hold it for as long as it takes to saturate the area with “quick impact” rebuilding projects, build up and hand over to local Afghan security forces, and win the trust of the people. But locals are unlikely to co-operate eagerly with the foreigners until they are sure that they are not going to be abandoned to a vengeful Taliban. Winning their confidence and raising reliable Afghan forces could take years, if the current venality of the police is anything to go by. The Afghan National Army is generally a better prospect, but has morale problems of its own. One in four men of the first unit sent to Helmand to give the British operation an “Afghan face” deserted on the way.

Still, there are some signs that local government is getting better. The commander of forces in the south, a Canadian general, David Fraser, is fulsome in his praise for the efforts of several newly appointed provincial governors. They are plainly a more honest bunch than their dreadful predecessors. In Zabul, Governor Delbar Arman is winning particular approval for defying tribal pressures and sacking many corrupt officials. Across the country, provincial and district police chiefs are being made to sit exams. A large number of doubtful characters can expect to get their marching orders. But finding enough honest replacements to do a dangerous and underpaid job will be hard.

Copyright © 2006 The Economist Newspaper and The Economist Group. All rights reserved.

PRINTABLE PAGE VIEW SPONSORED BY

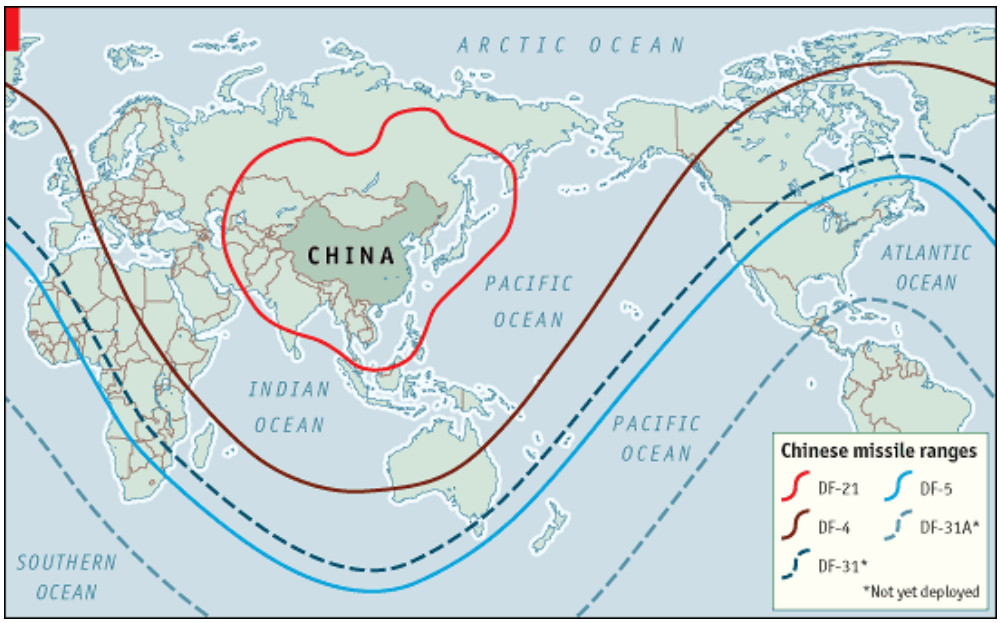
About sponsorship

China and America

Out of their silos

Jun 8th 2006 | BEIJING
From The Economist print edition

The Pentagon frets about a build-up, but it is not a very speedy one



IF THE Pentagon is right, China's nuclear arsenal is on the verge of a big upgrade. As a deterrent against American nuclear attack, the Chinese have long relied mainly on a handful of intercontinental missiles that are slow to fuel and highly vulnerable. Now China is shifting to new types of missiles that are harder to detect and can be launched much more quickly. But is this a reason for America to worry?

The Pentagon clearly does. In its latest annual report on China's military power, published in May, it says that several aspects of China's military development have surprised American analysts. These include the pace and scope of the modernisation of its strategic forces. The report says this is among various trends “with the potential to pose credible threats to modern militaries operating in the region”. America's would be an obvious one.

China does not say how many nuclear weapons it has, except that they are fewer than those of any other established nuclear power. The Pentagon says China has only 20 missiles capable of reaching the American mainland. These are DF-5s (also called CSS-4s), based in silos. They use liquid fuel, which is stored separately for safety and needs to be time-consumingly transferred to a missile before launch. Some analysts believe the warheads are stored separately too. It could take up to two hours to prepare them for use. China has another 20 or so liquid-fuelled DF-4s (also called CSS-3s) and as many as 50 DF-21s (CSS-5s) that can reach targets in Asia and Russia (see map). The total number of nuclear warheads is usually estimated in the low hundreds, compared with America's more than 5,000.

China's small and cumbersome force of long-range missiles is inherently vulnerable to a pre-emptive strike. But this, the Pentagon suggests, is on the verge of changing. This year could see the first deployments of DF-31s (CSS-9s). These would be mounted on trucks or railcars, making them much harder to find. They would also use solid fuel, which would considerably reduce preparation time. A longer-range version, the DF-31A, could be in operation next year. The JL-2, a submarine-launched missile, could be deployed between 2007 and 2010. These would bring all of America within reach.

China says it will not change its doctrine of “no first use” of nuclear weapons. But the Pentagon quotes remarks by Chinese military and civilian academics that suggest there could be some debate about this. One of the academics cited by the Pentagon, Shen Dingli of Fudan University in Shanghai, says he believes the policy should be revised to allow a nuclear response to a conventional strike against China's nuclear arsenal. The accuracy of American precision-guided weapons used in recent conflicts has been observed by China with alarm. So too has America's

pursuit of a missile-defence system that could destroy any surviving Chinese missiles that are launched in retaliation.

James Mulvenon, of the Centre for Intelligence Research and Analysis in Washington, says China's deployment of more survivable nuclear weapons could make it feel that it could constrain American intervention in a conflict over Taiwan. But he shares the view of many analysts that China is not preparing a massive expansion of its intercontinental missile force. It still seems to believe in a “minimum deterrent”, notwithstanding the braggadocio of a Chinese general who last year threatened the destruction of “hundreds” of American cities should America go to war with China over Taiwan.

Even if the pace of modernisation is now picking up, it has taken China a long time to get this far. Western analysts have been expecting deployment of the DF-31 for several years. Development has been plagued by technical problems. China has just one nuclear missile submarine, and there are doubts about whether it is armed with ballistic missiles. It is working on only one other. Jeffrey Lewis of Harvard University thinks Chinese leaders are less worried about a pre-emptive strike by the Americans than about an accidental or unauthorised launch by a junior commander of the new missiles.

Copyright © 2006 The Economist Newspaper and The Economist Group. All rights reserved.

Economist.com WORLD ASIA
PRINTABLE PAGE VIEW SPONSORED BY
About sponsorship

Fuel prices in India

Battle on

Jun 8th 2006 | DELHI
From The Economist print edition

The government takes on its own supporters

Get article background

AFTER successes in important state elections in April and May, India's Communists were expected by some to throw their weight around in the central government in Delhi, making controversial economic reforms harder. Others disagreed, arguing that, once those elections were out of the way, the prime minister, Manmohan Singh, a famous reformer, would become bolder. This week's decision by the government to raise the prices of petrol and diesel, and the furious reaction of the left, suggest that both optimists and pessimists were right.

On June 5th, the government, a coalition led by the Congress party, announced that petrol would cost four rupees (about nine cents) and diesel two rupees more per litre. It argued that this was essential to the finances of the state-owned firms that dominate the market. Despite the rise in the price of crude oil, they have kept their prices stable since September. Because the burden of subsidising oil-product prices was borne by the companies, it did not show up in the government's budget deficit. But Morgan Stanley, an American investment bank, had calculated the cost this year as 1.1% of GDP.

Cutting such subsidies, which are, in theory, aimed at the poor but disproportionately benefit the rich, is among the most important of reforms to India's hobbled public finances. But they are also perhaps the most painful, because voters notice the effect at once in their pockets. Besides the direct impact of higher diesel and petrol prices, consumers assume that higher transport costs will soon make most things more expensive.

The government has sought to ease the pain by leaving untouched the price of kerosene, the poor person's fuel. It has also sought to reduce the subsidy in other ways: cutting the customs duty on petrol and diesel by a quarter, and reducing the cost of oil by tinkering with the pricing formula. Moreover, as ministers pointed out, the government is still footing most of the bill for the surge in global oil prices.

Even so, the “left” parties, such as the Communists, which are not part of the ruling coalition but provide the votes it needs for a majority, have called a nationwide protest against the decision for June 13th. Even Congress spokesmen have expressed misgivings about the price rises, and after a meeting with Sonia Gandhi, the party's leader, Murli Deora, the petroleum minister, did not rule out a climbdown.

The main opposition Bharatiya Janata Party (BJP) also took to the streets, on June 7th, although, when in power until 2004, it too had tried to cut subsidies. But the BJP is preoccupied by an embarrassing drugs scandal involving the son and secretary of one of its leading lights, Pramod Mahajan, who died last month after being shot by his brother. With the lurid private lives of its leading personalities grabbing the headlines, the BJP itself seems in a self-destructive mode. Not for the first time, this government's real opposition seems to come from its notional supporters.

Copyright © 2006 The Economist Newspaper and The Economist Group. All rights reserved.

PRINTABLE PAGE VIEW SPONSORED BY

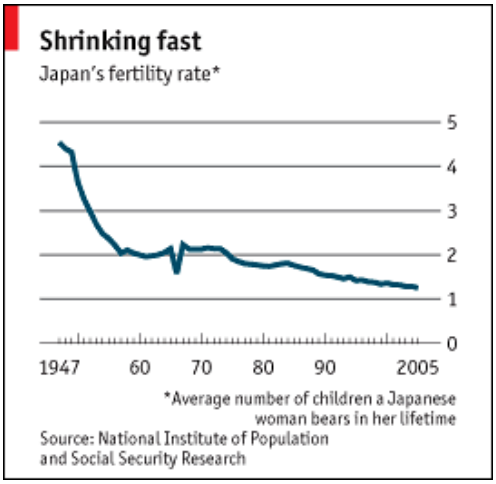
About sponsorship

Love and marriage in Japan

White weddings

Jun 8th 2006 | TOKYO
From The Economist print edition

You can get anything you want in Japan, for a price



NATIONAL alarm has greeted the news that Japan's fertility rate fell again last year to a low of 1.25 children per woman. But the trend may be about to change. Any weekend idler in Tokyo is struck by the number of Western-style weddings, and especially by the many young white priests officiating in hotels, cafés and mock temples—anywhere, indeed, except real churches.

A giant industry is at work getting the record number of unmarried Japanese to the altar. Computer-dating agencies say that they are taking over the role of the traditional *nakodo*, or match-maker, usually an aunt or busybody neighbour. Haruyuki Fujieda, a senior executive at Zwei, one of the biggest agencies, says research shows that over four-fifths of all singles between 24 and 44 do not choose to be unmarried, but are too busy to have found the right partner.

Zwei recently opened a “wedding concierge”. To see what big business this is, visit the latest landmark in Omotesando, Tokyo's choicest shopping district. “St Grace Cathedral” is a medieval fantasy with stained-glass windows, gothic spire and a host of other flourishes, from Disney turrets to Georgian porticos. Don't think you can wander in to take communion, though. Weddings are what it does, at ¥5m ($46,000) a time for 100 guests, five times a day.

The couples who come have already married before at a city registrar. Their wedding at St Grace Cathedral and similar places offers only the outward trappings of a Christian wedding. Most establishments get couples and their guests through the service in 40 minutes; one cut-rate place does it in 20. Catering is where the money is made, while most other wedding services—flowers, choir, even harpist—are subcontracted.

The most sought-after is the Western “priest”. These are supplied by an ecclesiastical talent agency complete with fake ordination papers, should anyone bother to ask. For impoverished actors, models and English-language teachers, the work is manna: the pay is ¥10,000-15,000 a service, and you can do eight a day. One young Westerner, who earns ¥10m a year for a three-day week, says the work is not easy: unlike acting, where at least you get a break, you have to be a priest all day, and speak flawless Japanese to boot.

Many of his fellow priests, he says, are cynical about their work. But he often gets caught up in the occasion. Besides, the couple and congregation are not Christians; the wedding is their Western fantasy. And there are nowhere near enough genuine Western priests in Japan to cope with the demand.

Copyright © 2006 The Economist Newspaper and The Economist Group. All rights reserved.

PRINTABLE PAGE VIEW SPONSORED BY

About sponsorship

Central Asia

The Shanghai Six at five

Jun 8th 2006 | BEIJING
From The Economist print edition

A club, yes, but not a gentlemen's club

AS THE fifth birthday on June 15th of the Shanghai Co-operation Organisation draws near, the club's six members—China, Russia, Kazakhstan, Kyrgyzstan, Uzbekistan and Tajikistan—have much to celebrate. Oil recently began to flow through a long-awaited pipeline to China from Kazakhstan (which also brings oil from Russia to China). A new round of joint military exercises is scheduled for next year. And, after successfully supporting Uzbekistan's President Islam Karimov in the wake of the Andijan massacre last year, China and Russia have slowed America's attempts to clamp international sanctions on a nuclearising Iran.

Small wonder that full membership of the Shanghai Six is highly valued. Pakistan, which like Iran, India and Mongolia is only an “observer” at present, is especially keen to join. Its president, Pervez Musharraf, is offering China an “energy corridor” to Central Asia and the Middle East in exchange. Membership offers hydrocarbon trade, stronger defence links and, for those who want it, a way to counter the influence of the Americans. On the face of it, that makes for a successful club.

Or so it seems. For beneath the Shanghai spirit is much mutual suspicion. When Russia's Vladimir Putin visited China in March, he disappointed his hosts by promising only that he would study the feasibility of a plan to build a branch of Russia's Pacific coast oil pipeline to China. This sluggishness, lamented China's energy planners, was “regrettable”.

There is wariness, too, between the club's Central Asian members. Last year, the Shanghai Six called for a deadline for American forces to withdraw from the region. But with the exception of Uzbekistan, most of these countries have shrewdly maintained links with America in order to counter Russian and Chinese power. For all its tough anti-American talk, Kyrgyzstan has let the United States keep its base at Manas. Kazakhstan will host NATO's Steppe Eagle exercises in September. And, to the Kremlin's dismay, the Kazakhs are considering a trans-Caspian gas pipeline that will avoid Russia and so break Moscow's chokehold on supplies to Europe.

Like any organisation composed mainly of autocratic regimes, the club has a brittle feel. Political dissenters—those whom the Shanghai Six tend to label as separatists, terrorists and extremists—are none too happy with the members' habit of excusing one another's excesses. Uzbeks disenchanted with Mr Karimov suspect Russia of having orchestrated the Andijan massacre in order to increase its own influence over their country. Russia and China may yet pay a price for excessive intimacy with the repressive regimes of Central Asia.

A great birthday bash is planned in Shanghai on June 15th. But like the city for which it is named, this club is not altogether the glittering success it seems.

Copyright © 2006 The Economist Newspaper and The Economist Group. All rights reserved.

Economist.com WORLD ASIA
PRINTABLE PAGE VIEW SPONSORED BY
About sponsorship

Defence in South-East Asia

From talking to doing

Jun 8th 2006 | SINGAPORE
From The Economist print edition

Military co-operation takes shape

EAST and South-East Asia have plenty of forums for talking about defence co-operation. What has been lacking, until recently, is action. However, when the region's defence ministers and military chiefs met in Singapore on June 2nd–4th, it was clear that there was now a will to go from talking to doing. Indeed, the region's armed forces have already started working together to fend off terrorists and pirates.

Singapore's defence minister, Teo Chee Hean, said most progress has so far been made in maritime security. With reason: around 30% of all seaborne goods and about half the oil traded internationally pass through the Malacca and Singapore Straits, a few miles from where the delegates were sitting. The region's expanding trade means that protecting these and other busy sea lanes is ever more vital.

In 2004, Indonesia, Malaysia and Singapore began joint round-the-clock naval patrols of the straits. Last year joint air patrols were added, with the countries taking part even experimenting with multinational aircrews. Indonesia and Singapore have connected their naval surveillance systems to provide a real-time picture of movements in the Singapore Strait. A centre for sharing intelligence on pirates is also being set up in Singapore.

At the Singapore defence meeting, India—a growing naval power as well as a growing user of world trade routes—offered to join these efforts to secure the waters between the Indian Ocean and the Pacific. America, Australia and Japan are all busy forging stronger security links with South-East Asia. The most conspicuous absentee is China, which remains averse to military co-operation.

The latest annual “Military Balance” survey by the London-based International Institute for Strategic Studies (IISS), which organised the meeting, reports that several South-East Asian countries are revamping their navies and coastguards. Indonesia's navy is buying Dutch corvettes, Polish planes and Chinese anti-ship missiles. Its coastguard—puny for a country made up of 17,500 islands—is being reinforced with patrol boats donated by Japan. Vietnam is building new ships and refitting old ones. Malaysia, which had lacked a national coastguard, has just created one. Tim Huxley of the IISS says the strengthened coastguards should find it easier to co-operate than the region's armed forces, which are still constrained by national rivalries.

Until recently, piracy was rising in the straits. A few mysterious incidents—such as one off Sumatra in 2003, in which hijackers experimented with a ship's steering before abandoning it—suggested that terrorists too may be rehearsing attacks there. Increased naval co-operation and the peace process in Indonesia's Aceh province (whose separatists hijacked ships to grab money and guns) have cut piracy since 2004.

Plenty more could be done. At the summit, Malaysia proposed a regional disaster-relief centre to co-ordinate military and civilian aid in emergencies such as the recent Java earthquake. Australia is pleading for more South-East Asian troops and police for the peacekeeping operation it is leading in Timor-Leste.

In part, the increased military co-ordination is a response to an American plan, launched two years ago, to strengthen Asia-Pacific naval co-operation. Military chiefs worried that, unless they came up with locally-led schemes, they would find American ships lurking off their coasts. Possibly even less appealing was the fact that shipping firms, faced with rising piracy, had been considering hiring Western “security firms”. No one likes having well-armed ships full of foreign mercenaries in their waters.

Copyright © 2006 The Economist Newspaper and The Economist Group. All rights reserved.

The death of Abu Musab al-Zarqawi

Will it make a difference?

Jun 8th 2006
From The Economist print edition

The killing of Iraq's bloodiest terrorist leader will boost the new government of Nuri al-Maliki—but not necessarily for long

Reuters

Get article background

ON JUNE 7th, American troops killed Abu Musab al-Zarqawi, the self-proclaimed boss of al-Qaeda in Iraq, in an airstrike near the central town of Baquba. Though details of the killing were still hazy, early reports suggested that Mr Zarqawi was holed up in an obscure hut, hidden by palm-trees; and that his remains were identified by sight and by finger-prints. Hazy, too, is the effect this will have on the insurgency and sectarian war boiling in Iraq. Mr Zarqawi's death will not end the terrible violence, nor perhaps will it even reduce it by much. Though an important cheerleader for Islamist militants in Iraq, and everywhere, Mr Zarqawi probably orchestrated only a small portion of the war. But this was, by any measure, America's single biggest scalp in nearly five years of fighting Islamist terror.

With a $25m bounty on his head, Mr Zarqawi was identified by America as its main enemy in Iraq shortly after it invaded the country three years ago. Most analysts felt this exaggerated his importance: the insurgency from the start was more indigenous and more popular than the Americans admitted. But, perhaps partly as a result of the publicity he received, Mr Zarqawi succeeded in bringing the al-Qaeda brand to Iraq, making the insurgents a source of inspiration elsewhere. He was behind the only efforts yet to export the violence in Iraq around its region. In November last year, suicide-bombers attacked three hotels in Jordan, Mr Zarqawi's homeland, on his instructions, killing some 60 people. More recently, he had planned attacks on Eilat, Israel's Red Sea port and resort. If his death does not much disrupt the insurgents in Iraq, who are organised in many small groups responsible for their own recruiting, supplies and planning, it will dismay their sympathisers elsewhere.

One reason Mr Zarqawi was successful in Iraq was because he started early. He moved there two years before America invaded, to join a local Islamist group, al-Ansar al-Islam, in order to plot the overthrow of Jordan's government next door. His previous history was not unlike many current jihadists. A middle-class drifter, he found meaning in the Islamist guerrilla war in Afghanistan in the 1980s, to drive out the Soviet Union. But, unlike Osama bin Laden, Mr Zarqawi was a very peripheral figure in that war. He arrived in Afghanistan in 1990, after the Russians had withdrawn, and founded a training camp there to prepare guerrillas for a similar struggle in Jordan. Returning home, he was arrested for trying to overthrow the monarchy and jailed for seven years, after which he made his break for Iraq.

Mr Zarqawi's signature violence has been the kidnapping and beheading of Westerners in Iraq. He is believed personally to have sliced off the head of Nicholas Berg, an American businessman killed in 2004. As his fame grew, he made several well-publicised contacts with Mr bin Laden and his number two, Ayman al-Zawahiri, who are

believed to be hiding in the mountains along the Afghan-Pakistan border. In a letter intercepted by the Americans last year, Mr Zarqawi pledged fealty to Mr bin Laden. He also renamed his movement “al-Qaeda in the Land of the Two Rivers”, or al-Qaeda in Iraq, and so capitalised on its global brand.

What contribution he made to the insurgency is unclear: America's understanding of it has often been muddled. But in internet postings and in a couple of recent videos he sold himself as a well-organised enemy of Arab governments, America and Israel. He was helpful, at least, in recruiting several hundred young Muslims into Iraq, mostly through Syria, to become suicide-attackers. At first their targets were American and Iraqi troops. But over the past year or so the blasts have mostly been directed at Iraqi civilians, especially those of the Shia majority, in an effort to stoke a civil war.

This effort has been hideously and dazzlingly successful. Most of the violence in Iraq is now sectarian; and most Sunni insurgent groups are Islamist. Mr Zarqawi's death will not deter them; indeed, having achieved martyrdom, the supposed ambition of all jihadist militants, he may have inspired them more by his death. But it may also be a blow to those in Iraq, especially the small minority of foreign militants, intent on exporting terror around the region and the world. It may also boost the fledgling government of Nuri al-Maliki, Iraq's new prime minister, which has made tentative efforts to reach out to Sunnis and draw them back from the Islamist margins.

It is certainly a great and painfully rare victory for American intelligence efforts in Iraq; indeed, the Jordanians have been quick to claim some of the credit for tracking Mr Zarqawi down. In any event, Mr Maliki, who this week at last managed to appoint new ministers of interior and defence, the latter a Sunni Arab, was understandably jubilant.

Copyright © 2006 The Economist Newspaper and The Economist Group. All rights reserved.

Somalia

Guess who's running it now

Jun 8th 2006 | NAIROBI
From The Economist print edition

Might a victory for Somalia's assorted Islamists offer some hope for its people?

Get article background

THE speed with which Islamist militias this week at last seized control of Mogadishu, Somalia's ravaged capital, was telling. Gunmen loyal to secular warlords fled without much of a fight, losing a battle not just of territory but also, it seems, of hearts and minds. The Islamists have tightened their grip on Balcad, a strategic town 30km (19 miles) north of Mogadishu, and were advancing on Jowhar, one of the warlords' last redoubts, some 90km north of the capital. Meanwhile, Somalia's impotent and fractured transitional government, recognised by most of the rest of the world but with little sway over Somalia, is nervously camped out in the dusty town of Baidoa, some 250km to the north-west.

"The big battle for Mogadishu is over," says a seasoned Somalia-watcher based in the Kenyan capital, Nairobi, the main hub of exiles and diplomats trying to make sense of the latest chaotic events. "But the battle for the rest of Somalia is just beginning." The question uppermost in such minds is whether Somalia—or at least large swathes of it—will now become a training ground and haven for al-Qaeda types, as some American officials fear, or whether, by contrast, a comprehensive victory may offer a chance of stability, whoever the victors are and however authoritarian they may be.

EPA

The new team shows its face

At first glance, the Islamist win is a big bonus for al-Qaeda. Islamists already enjoy support across Somalia's intricate but crucial clan lines. Many children in Mogadishu are already being educated in Islamist schools, with the usual infusion of bellicose propaganda. Islamist militias, under the control of a Union of Islamic Courts, have a unity of purpose reminiscent of Afghanistan's Taliban, which many Afghans at first welcomed in the hope that ruthless authority was better than deadly chaos; there are signs that Somalis in Mogadishu may, at any rate at first, take a similar view. But the new Islamist courts are unbending in their application of *sharia* law. A recent court verdict allowed a boy to stab his father's murderer to death, in head and chest, in front of a large, cheering crowd.

By contrast, Mogadishu's secular warlords look busted. They formed a self-proclaimed Alliance for the Restoration of Peace and Counter-Terrorism earlier this year, with the aim of turning back the Islamists' influence and catching one or two al-Qaeda suspects who might have been hiding in Mogadishu. That was enough to win them the backing of the CIA, which, say several sources, funnelled money to them, with disastrous results. "Everyone was aghast at what the Americans were doing," says a European diplomat. Some in the State Department and the CIA privately bemoan what they see as both the half-heartedness of the operation and a failure to foresee its messy results. An American diplomat in Nairobi responsible for overseeing Somali politics was removed from his post for speaking out. Some of his dissenting reports did not, apparently, reach Washington.

One result is that the United States is more unpopular than ever in Mogadishu. American flags are being burned even in quieter parts of the city; anti-American rhetoric is finding a wider audience. Memories have been rekindled of 1993, when 18 American peacekeepers were killed in Mogadishu after the downing of two helicopters and several hundred Somalis were killed, mostly by the Americans, during the rescue attempt.

America has also been widely blamed, both inside Somalia and among exile groups and diplomats in nearby countries, for egging on the warlords who have been accused of sparking the gun battles that have flared on and off in northern Mogadishu for the past month. Some 350 fighters and civilians have been killed, and at least 2,000 wounded. One of the two hospitals in Mogadishu being run by the International Committee of the Red Cross, which is struggling to bring in medical supplies, has been taken over by a warlord's militia.

There is some hope, however, that a comprehensive victory of the Islamists in the south may at least restore order and perhaps give Somalis a sustained period of respite for the first time since General Siad Barre's Soviet-backed

regime collapsed in 1991 after 30 years in power. If food, medicine and cash can now be brought in, Somalis may at last be able to start rebuilding their devastated capital.

Much depends on how the Islamists behave and how they are received, outside Somalia and within. So far, they have apparently been acting with restraint, promising to restore law and order, limiting the number of checkpoints and reopening the port. Reports from the capital say that many of its people, even secular-minded ones, reckon the Islamists look less brutal and greedy than the warlords they have displaced. And they are keenly trying to distance themselves from al-Qaeda. In a letter sent this week to embassies in Nairobi, they strongly deny harbouring terrorists, disavow terrorism, and invite diplomats to come and see for themselves.

They have also hinted at a willingness to negotiate with the feeble transitional government in Baidoa, perhaps offering it three or four cabinet posts, including those previously held by the secular warlords sacked for their part in the recent fighting in Mogadishu. As part of such an accommodation, the Islamists would probably have to agree not to impose *sharia* law on Somalia, at any rate under a transitional government of national unity. Nobody, for the moment, seems to be mentioning elections or democracy.

If a modicum of peace did break out, Somalia would still be a patchwork state—but it might become a more or less functioning one. The recent violence, ending in victory for the Islamists, has been concentrated on Mogadishu, in the country's southern third. Much of the rest of Somalia, however, has been steadier. To the north, the self-proclaimed breakaway state of Somaliland (once British Somaliland, the rest of Somalia being run by Italy until its defeat in the second world war) has been fairly well governed. It has a chance of seceding, especially if it drops its claim to a chunk of Somalia's autonomous north-eastern bit, known as Puntland, which may have oil. Several towns elsewhere, such as Kismayu in the south, have been pretty well self-governing. It is not clear whether the Islamists would ever accept Somaliland's secession; perhaps not.

If their initial restraint is not reciprocated, the Islamists could yet turn radical. Whatever the new rulers say, international terrorists may seek a haven in their domain. Jihadist terrorists of Somali origin have been active round the world, including Britain; two suspects arrested last week in Canada were born in Somalia (see article). And the Americans may try to revive the secular warlords, using Ethiopia as a conduit for cash and guns.

The Islamists may also quarrel among themselves. Somali clan rivalries have a habit of pulling Somalia's governments apart, however unifying the call of Islam. There may also be rows over how to deal with the lucrative trade in qat, a narcotic leaf that many Somalis chew and which is flown into Mogadishu daily from Kenya and Ethiopia, perhaps accounting for as much as half the city's cash economy.

The European Union, with Italy and Britain, as former colonial powers, to the fore, will probably try to shore up the transitional government in Baidoa while coming to terms with the Islamists in Mogadishu. On the whole, they think America would be wise to abandon the warlords and spend cash building up the Somali economy wherever there is a bit of order. The Somalis also want the Americans to press Saudi Arabia to lift its ban on direct imports of Somali livestock. Food and medicine is even more badly needed to fend off the drought afflicting the Horn of Africa. Some UN agencies say that 10,000 southern Somalis a month may otherwise die. The fighting in Mogadishu has raised prices of basic food and fuel by 30%.

Until now, insecurity has made it hard to provide any aid by land or sea. Foreign aid workers have been killed or kidnapped. Extortion has been rife. The UN has received only $135m of the $326m it says Somalia needs merely to keep its people alive. No one knows whether an Islamist government running the south will make the job easier. With luck, it might.

Copyright © 2006 The Economist Newspaper and The Economist Group. All rights reserved.

Abu Dhabi

Sitting pretty

Jun 8th 2006 | ABU DHABI
From The Economist print edition

Haven of prosperity in a turbulent sea

IT IS nice to be rich, but nicer still to have it all amid a surrounding sea of trouble. Even among the monarchies of the Gulf, whose wealth has soared with the price of oil, the emirate of Abu Dhabi stands out as serenely blessed.

Super-rich Kuwait sits uncomfortably close to unruly Iraq and obstreperous Iran, and Saddam Hussein's invasion in 1990 burned up much of its fortune. Saudi Arabia pumps far more oil, but must split the proceeds among lots more people, quite a few of them bellicose Islamists. Tiny Qatar is underpeopled and rolling in cash, but its erratic foreign policy irritates Saudis, Americans and others one should not annoy. Even Abu Dhabi's neighbour Dubai, the glitzy boomtown that is another of the seven United Arab Emirates, is troubled by the grumbles of abused foreign workers.

Abu Dhabi has always kept a lower profile, and with good reason. This is where the real money is. Suffice it to note that it has barely 250,000 citizens (cosseted by a million bustling expatriates), but sits on a tenth of the world's oil. Its main overseas financial arm, the Abu Dhabi Investment Authority (ADIA), has accrued wealth steadily for 30 years. Its portfolio, widely dispersed in unobtrusive stakes, is managed with extreme discretion: wisely, considering the Arabophobia roused by Dubai's recent bid to manage some American ports. Estimates of ADIA's size range from $200 billion to “way north of $500 billion”, according to one foreign investment banker. In other words, it may be the world's biggest investment fund.

But Abu Dhabi's profile has started to rise, quite literally. Its rulers have lifted restrictions on property ownership, and granted prime land to a select few firms. Thousands of villas, hundreds of skyscrapers and dozens of beach hotels are planned to sprout from the coastal sandflats surrounding the capital.

Yet real estate accounts for just a third of the $100 billion that the emirate expects to spend on itself in the next five years. Aside from bingeing on an underground railway, roads, schools, hospitals, a giant petrochemicals complex, a steel mill and the world's largest aluminium smelter, it will triple the capacity of its sea and airports. It also intends to raise oil production by 70%, meaning even bigger cash flows in future.

The empowerment of the few dozen young, hard-driving locals who now run the show, many of them ADIA graduates, has speeded the pace of change since the death of Sheikh Zayed al-Nahayan, who led the emirate for 40 years. Much of the generous welfare state he created is now being corporatised and privatised. Some in Abu Dhabi bemoan the passing of the old, relaxed lifestyle. But younger citizens appear excited by the opening, soon, of Ferrari World, a theme park that is one of the rewards from the purchase last year by Mubadala, a state investment house, of a juicy slice of the Italian racing-car firm.

Copyright © 2006 The Economist Newspaper and The Economist Group. All rights reserved.

Iran and nuclear diplomacy

Risky bargaining

Jun 8th 2006
From The Economist print edition

Should Iran's latest threat to stop oil exports be taken seriously?

SINCE the Americans changed tack last week by saying they would join direct talks with Iran if the Islamic Republic agreed once more to suspend its enrichment of uranium that might be used to build a nuclear bomb, the mood of diplomacy has turned a bit jollier. Javier Solana, the European Union's foreign-policy chief, flew to Tehran, where he offered a new bunch of incentives to encourage Iran to negotiate in good faith. "The proposals contain some positive steps and some ambiguities which must be removed," said Ali Larijani, Iran's top security man. At the same time, however, the Iranians were not averse to showing their muscle. The country's supreme leader, Ayatollah Ali Khamenei, who has the final say on anything important, threatened to block oil from leaving the Persian Gulf if Iran felt, in the course of bargaining, that the sticks outweighed the carrots.

"In order to threaten Iran, you say you can secure energy flows in the region," he told the Americans in a speech at the shrine of his revolutionary predecessor, Ayatollah Ruhollah Khomeini. "Beware: if you make the slightest mistake over Iran, the energy flow through this region will be seriously in danger."

Iran's leaders have previously hinted that they could counter UN-endorsed economic sanctions on Iran, which the Americans have often recommended, by stopping their oil exports, in an effort to drive oil prices sky-high and harm all the world's economies. Mr Khamenei's comments immediately lifted crude prices by nearly 80 cents a barrel to more than $73, showing just how fast energy markets twitch at the prospect of Iranian oil curbs. After the Iranians then made more conciliatory noises, the oil price fell back again slightly, but remained near the record level it had reached in April.

It would certainly rise even higher if Iran carried out its threat to curtail its own production. It exports about 2.8m barrels a day, some 3% of world demand. Since few producers have much spare capacity at the moment, any reduction in supply—be it from Iran, Nigeria or Bolivia—makes prices jump. Iran's output would be hard to replace—but not impossible. Saudi Arabia says it is not pumping as much oil as it can, for want of buyers, and so should be able to make up for much of any cut in supplies. Furthermore, the Saudis' slackening output suggests that the high price is finally beginning to sap demand.

But Mr Khamenei did not just threaten to cut Iran's own supplies—he also implied that oil exports from other Gulf countries might be in jeopardy. Iran had already flexed its muscle in April by holding naval manoeuvres in the narrow Strait of Hormuz, which provides the only outlet from the Gulf, to show how easily it could block it off.

If it did so, the markets would go berserk. The region supplies over a quarter of the world's oil. Some of it is exported through pipelines, and more could be diverted to them, but the vast majority goes out by tanker through the strait. Iran did target tankers, and lay mines in shipping lanes, during its war with Iraq in the 1980s. If a fully-fledged war broke out, the world's biggest oil fields and refineries would also be in harm's way.

However, America has a whole naval fleet anchored off Bahrain, just across the Gulf from Iran. If need be, its ships would escort oil tankers, just as they did during the Iran-Iraq war. And over 4 billion barrels of oil are stored in commercial and government reserves around the world, which should help keep cars running during a short Gulf war.

Western military analysts say that the Iranians would be more likely, if things got really nasty, to use small mobile teams on land who could shoot at tankers from different spots every day. Such guerrilla-style tactics would make it hard to safeguard shipping through the strait without provoking land operations of the sort that the Americans, already bogged down in Iraq, would much rather avoid.

In any case, Iran's economy is probably too fragile for its leaders to risk an oil freeze. In 2004, when the price was lower, it accounted for a quarter of Iran's GDP, four-fifths of its exports and nearly one-third of total government revenue. Since the election of President Mahmoud Ahmadinejad, spending has risen fast and much-needed restructuring has ground to a halt after years of slow but steady progress, making the country depend more than ever on oil income. Iranian economists fear that a sudden slide in revenue would throw many Iranians out of work and force up prices of basic commodities like petrol, which are heavily subsidised. In sum, it is unlikely that Mr Khamenei would carry out his oil-freeze threat.

Copyright © 2006 The Economist Newspaper and The Economist Group. All rights reserved.

Israel

Quarrels as usual

Jun 8th 2006 | JERUSALEM
From The Economist print edition

First cracks in Israel's ruling parties

THEIR coalition government is just weeks old, but Israelis are already talking about how shaky it is. That is normal: few Israeli governments complete their terms. This time, though, it is not the ensemble of parties that is looking fragile so much as the main parties themselves.

Kadima, the party of Ehud Olmert, the prime minister, has yet to prove to sceptics that it is more than just the political vehicle that his predecessor, Ariel Sharon, assembled for himself after abandoning the right-wing Likud last autumn. Its top figures are drawn from both the Likud and the centre-left Labour party. All things considered, it has been remarkably cohesive. Its glue is Mr Olmert's plan for withdrawing settlements from the West Bank unilaterally instead of trying to negotiate with the Palestinians. But a policy is a poor substitute for an ideology, especially when the other big party in the ruling coalition, Labour, backs the same policy.

And the policy could be called into question if Palestinians vote yes in a referendum on a document, signed by a cross-factional and respected group of militants, that proposes implicitly accepting Israel's existence. Mahmoud Abbas, the Palestinian president, set a deadline of June 6th for Hamas to agree to the proposal voluntarily, but then extended talks between his Fatah party and Hamas for a few more days. Hamas looks unlikely to agree; that would concede too much in its power struggle with Fatah. But a poll out this week by Birzeit University found 77% of Palestinians backing the proposal. If they translate that opinion into votes in a referendum, which is uncertain, pressure will grow on Israel from abroad at least to postpone the withdrawal plan, even though the prisoners' proposal falls short of Israel's conditions for doing so. That could expose rifts in Kadima.

Labour, though, is in more trouble. Amir Peretz, its leader, wound up in a tricky position when he was forced to accept the defence minister's job from Mr Olmert, rather than the hoped-for finance job. As one of the few defence ministers in Israeli history who was never a senior soldier, he has to win the generals' respect; but as a former trade-union boss, he has to keep his standing with voters who supported his party's social-welfare platform, which included a promise to cut defence spending by 2 billion shekels ($448m). Inevitably, one of those things had to give, and Mr Peretz—though he did win other concessions from Mr Olmert, such as a rise in the minimum wage—has become a staunch defender of the military budget.

That caused a minor revolt by a group of Labour MPs led by Avishai Braverman, a former World Bank economist who had his eye on the finance portfolio too. They abstained from voting on the budget, which passed this week with a small cut to defence. Ephraim Sneh, a hawkish lawmaker close to Mr Peretz, dismisses their criticisms: “We're committed to the principle that Israel must be the strongest military power between Baku and Casablanca, and that commitment is stronger than the proposal of very distinguished economists to cut 2 billion [shekels] from the budget.” So the first salvo has been fired in what could become a leadership contest. Will Mr Peretz's chief opponent, in a few months' time, be Mr Olmert—or his own party?

Copyright © 2006 The Economist Newspaper and The Economist Group. All rights reserved.

PRINTABLE PAGE VIEW SPONSORED BY

About sponsorship

France

The irresistible rise of Ségolène Royal

Jun 8th 2006 | PARIS
From The Economist print edition

A flexible and popular candidate meets an immovable and less popular party

Get article background

WHEN Britain's Labour Party chose Tony Blair as leader in 1994, left-wingers held their noses. Despite their distaste, he felt fresh, looked good and was popular enough to offer Labour its best chance of regaining power after 15 years in the wilderness. In France, where the Socialist Party has not had the presidency for 11 years, and an election is due next spring, a similar hunger has taken hold. The difference is that party grandees are putting up stiff resistance to the candidate who feels fresh, looks good and has conquered public opinion: Ségolène Royal.

When Ms Royal first hinted at her presidential ambitions nine months ago in *Paris-Match*, Socialist old-timers responded with scorn. “Who will look after the children?” sneered Laurent Fabius, a former prime minister, of this mother of four. Others pointed to her lack of heavyweight experience—she has served only in “soft” ministries such as education and the family. But the more she was dismissed, the more the public took to her. In a poll for *Libération* this week, 68% of Socialist voters said they wanted her as their presidential candidate, against 27% for the next choice, Dominique Strauss-Kahn.

Until recently, Ms Royal's strategy has been to say as little as possible, avoid policy questions, and watch her poll numbers climb. At last autumn's party conference, she sat silently as party elders tramped to the platform to pontificate, confiding shortly afterwards that her discretion was “deliberate”. Timing, she said, was all.

Over the past week, however, Ms Royal has kicked up a stink among the Socialist old guard. First, this daughter of an army colonel argued for a clamp-down on teenage criminals, calling for first-time offenders to be sent to boot camp, and for parents of delinquents to be dispatched to parenting school and have their benefits reviewed. Hardly had the outcry died away before she broke another taboo, the 35-hour week, introduced by a previous Socialist government. This time, she veered leftwards. Her criticism was not that it stifled the work ethic or burdened companies, but that it had bred too much insecurity: bosses had won flexible working practices in return for reducing the working week with no loss of pay. “Managers have benefited from extra days off and workers have had to work on Saturdays,” she wrote on her website (she is compiling a book based on online contributions).

At first glance, she seems guilty of ideological incoherence. In one breath, she criticises—however counter-intuitively—the 35-hour week for being too liberal; in another, she praises Mr Blair's employment record. Her web chapter, “The disorder of jobs and work”, is hardly a Blairite manifesto, denouncing “a globalised hyper-class” and its belief in the “all-powerful and all-beneficent market”. This week, Ms Royal stressed that she still supported the 35-hour week in principle. “I am a Socialist,” she declared, in case of doubt.

Within the party, her outbursts have caused consternation. “With the ideas she is developing today, she is cutting

the party in two," Claude Allègre, a former education minister, told *Le Parisien*. Even François Hollande, the party leader and Ms Royal's "partner", said that he did not agree with all her ideas. A disciplined party that functions through committees and consensus, it has not taken well to her blog-led quest for new thinking, or to her unilateral outspokenness. This week, the Socialists finalised an electoral programme that situates the party firmly to the left, calling for a big rise in the minimum wage, for renationalisation of the electricity utility, and for extra taxes on companies that distribute profits as dividends rather than re-investing them.

Yet it may be that Ms Royal is on to a rather smarter approach. She is pursuing a strategy of brand differentiation: entrenching her image among the electorate, which is tired of the stale grey political class, as fresh and innovative. She even talks of "*ségolisme*". Coherence matters less than distinctiveness. In this, she resembles Nicolas Sarkozy, the leading right-wing contender, who has built his image as a straight-talking, combative risk-taker. He joked this week that she "would make an acceptable candidate for the right".

Although her security hard-talk provoked much liberal hand-wringing in Paris, it drew applause at a meeting in northern France. A poll in *Le Figaro* suggested that 66% of the French agreed with her. Many left-leaning voters are fed up with the party's soft approach, which often excuses criminality. Moreover, fears about security are feeding the far right. In one poll, a staggering 31% of voters say they want the National Front's Jean-Marie Le Pen to stand for the presidency.

A second element in Ms Royal's strategy is to use her poll ratings to conquer the party, where she lacks a base. A new opinion poll by TNS-Sofres shows her to be France's most popular politician, fully ten points ahead of Mr Sarkozy, and the only candidate on the left who would beat him in a run-off. Thanks to an internet membership drive, the Socialist Party has expanded to over 200,000 members, a jump of almost 60% since March. An internal poll shows that many newcomers have neither belonged to a party before nor set foot in a Socialist meeting. Yet all those registered by June 1st will help to choose the presidential candidate in November. They could be just the sort who are drawn to the novelty and sense of renewal that Ms Royal seems to embody.

All the same, leading Socialists expect Ms Royal to trip up. Their rancour is breathtaking. Many consider her a media creation just waiting to implode. "The media is not interested in competence," laments one, "only in a beauty contest." One fear is that the party might pick her as a candidate—only for her to tumble afterwards, wrecking the left's chances next spring. According to one insider, her rival candidates are working towards an informal pact to back each other in the run-off for the party's nomination, in a bid to thwart Ms Royal. Some are even muttering about bringing back Lionel Jospin, a retired former prime minister.

If the presidential election were held tomorrow, "Ségo" and "Sarko" would cruise to the second round. Under the fifth republic, however, no poll has correctly forecast the two run-off candidates a year in advance. In 1994, for example, Mr Chirac languished way behind Edouard Balladur, a rival on the centre-right, and yet he won the presidency a year later. In 2002, Mr Jospin was expected to coast into the run-off. Instead, Mr Chirac defeated Mr Le Pen. It would be foolish to bet on Ms Royal now—but just as foolish to write her off.

Copyright © 2006 The Economist Newspaper and The Economist Group. All rights reserved.

PRINTABLE PAGE VIEW SPONSORED BY

About sponsorship

Germany and the World Cup

Klinsmann's castle

Jun 8th 2006 | BERLIN
From The Economist print edition

The hopes and fears of Germany's controversial national coach

AFP

Get article background

EVERY time Germany wins football's World Cup, some pundits assert, the country takes a turn for the better. Thus 1954 saw the start of the economic miracle, 1974 the birth of modern Germany and 1990 unification. The causality seems implausible, although some economists are talking up the 2006 tournament, which starts this weekend, and is being staged (like 1974's) in Germany. A clearer link exists between the country and its football association (DFB), since they display similar strengths and weaknesses.

The DFB, with 6.3m members, acts like a state within a state. In common with other German sports organisations, it has its own rules and enforcement methods. Even more than the political system, it is built for stability, not speed. It has its own parliament, which meets every three years and is made up of delegates from 21 regions. Its presidents' average age and tenure in office almost match those of popes.

Predictably, change comes slowly to the DFB. It was not until 1970 that it approved an official women's league. Only in 2001 did the DFB allow the top clubs to create their own subordinate governing body. Were it not for the World Cup, especially the staging of the final in the stadium originally built for the 1936 Olympic Games in Berlin, the DFB would still not have officially admitted its questionable activities during the Third Reich.

Yet until recently the DFB was highly successful. Because it saw market forces as incompatible with amateur sport, the DFB started a single professional league, the Bundesliga, only in 1963. This gave birth to the most modern league of the time, which may be why Germany was so good at football, says Thomas Kupfer, who has written a book on football management.

It was only a matter of time before stability turned into disadvantage. In 1990 the national coach, Franz Beckenbauer, promised that “working together with the eastern Germans, we will be invincible for years.” But the DFB failed to make top clubs professional enough or to foster modern training methods. Nor was young talent encouraged and brought on. German football, like the economy, began to decline, which became obvious when the team was thrashed by England in 2001. Three years later, it took a drubbing at the 2004 European championships.

Enter Jürgen Klinsmann, a former star footballer, hired as national coach mainly because of a lack of alternatives—just as Angela Merkel became boss of the Christian Democrats in 2000. Mr Klinsmann planned not only to win the World Cup, but also to reform the entire DFB. Always a maverick, he capped his career as a player by moving to California to start a sports consulting business.

He has indeed proved a reformer. He has centralised power so that he can prepare his team properly. He has decreed a more offensive strategy, and tried out many younger players. He has hired trainers versed in modern methods, including (horror!) an American fitness guru. He is fond of management fads, communicating by e-mail

and using motivational training. Despite (or perhaps because of) this, Mr Klinsmann has been vilified—not least for continuing to live in California. The DFB's board has rejected his candidate as chief talent scout, even though this job is central to his plans.

Will Mr Klinsmann stick around after the World Cup? Conventional wisdom says that the answer depends on how well Germany does. But he may also wonder if the DFB can ever change. Even were Germany to win, which looks unlikely, Mr Klinsmann might prefer to go back to California. That would make it hard to tout any victory as a harbinger of further reform, not just of Germany's football association, but of the country as a whole.

Copyright © 2006 The Economist Newspaper and The Economist Group. All rights reserved.

CIA flights in Europe

Report rendered

Jun 8th 2006
From The Economist print edition

European governments knew about the unlawful rendition of terrorist suspects

IN JANUARY the Council of Europe, an inter-governmental human rights organisation, released an interim report on "extraordinary rendition" of terrorist suspects in Europe. Dick Marty, a Swiss senator leading the investigation, claimed to have unearthed "coherent, convergent evidence...of a system of 'relocation' of torture by American agents." He added that it was "highly unlikely" that European governments—or at least their intelligence services—were unaware that more than 100 people had been unlawfully "rendered", or abducted, to third countries. "If governments resort to gangster-style methods, I say no!" he thundered.

In this week's final report, Mr Marty not only confirms his claim, but also asserts that at least seven European governments were complicit. Furthermore, he notes what he calls "coherent and converging elements" that point to the existence of secret interrogation and detention centres in Europe, notably in Romania and Poland. (The governments of these two countries vigorously deny this charge.)

Mr Marty's first report, based largely on press and allegations, was widely dismissed as an anti-American exercise. This time, his evidence is stronger, his sources more authoritative, and his tone more measured. He admits that "it would be exaggerated to talk of thousands of [CIA] flights, let alone hundreds of renditions" involving Europe. He fails to provide more than a strong presumption of the existence of secret detention centres. And he drops his earlier charge of a deliberate "outsourcing" of torture.

The Americans never denied their use of renditions. Indeed, the secretary of state, Condoleezza Rice, has said that the transport of captured terrorist suspects to third countries "where they can be questioned, held or brought to justice", has been practised by the United States—and other countries—for decades. She insists that this is all perfectly lawful. As John Bellinger, her chief legal adviser, put it to Mr Marty: "The United States does not do extraordinary renditions...[it] does not render people to other countries for the purpose of being tortured, or in the expectation that they will be tortured."

Mr Marty contends that the original rendition programme has now changed. Since September 11th 2001, captured terrorist suspects have been detained indefinitely, beyond the reach of any judicial system and without any human-rights protections, he says. This, according to the UN high commissioner for human rights, is tantamount to torture. Mr Marty's research uncovered ten cases of "unlawful interstate transfers" in Europe, involving 17 detainees, including some who claimed to have been tortured.

"It is now clear", Mr Marty says, "that authorities in several European countries actively participated with the CIA in these unlawful activities. Other countries ignored them knowingly, or did not want to know." He lists seven of the Council of Europe's 46 members who could be held responsible, in varying degrees, for violations of the rights of named individuals: Britain, Germany, Italy, Sweden, Bosnia, Macedonia and Turkey. Several more colluded, actively or passively, in the detention or transfer of suspects. And most governments "did not seem particularly eager to establish the alleged facts."

Copyright © 2006 The Economist Newspaper and The Economist Group. All rights reserved.

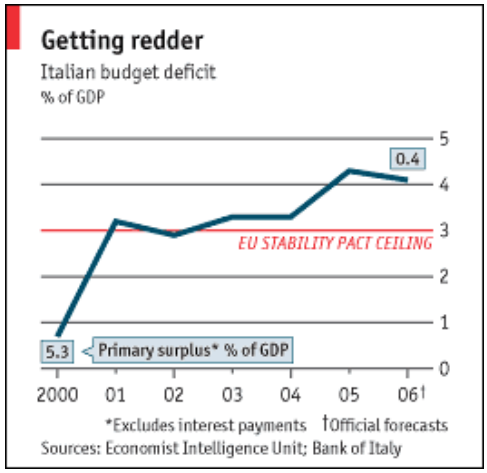
Economist.com WORLD EUROPE
PRINTABLE PAGE VIEW SPONSORED BY
About sponsorship

Italy's public finances

In a hole

Jun 8th 2006 | ROME
From The Economist print edition

Romano Prodi's government faces up to the need for fiscal austerity



ONLY in Italy could austerity measures be ushered in over dinner at a luxury hotel. Last weekend the new centre-left prime minister, Romano Prodi, and his cabinet repaired to a former noble retreat in Umbria. After hearing from the finance minister, Tommaso Padoa-Schioppa, about the dire state of the public finances, ministers enjoyed a five-course feast featuring truffle and pigeon risotto.

Self-denial does not come easily to Italians, as is shown by their national debt, the world's third-largest. Mr Padoa-Schioppa, who once served on the board of the European Central Bank, seems determined to give them some practice. Shortly before going to his first meeting of European finance ministers, Mr Padoa-Schioppa announced that deficit-cutting measures were “unavoidable”. A detailed review of the public finances had concluded that, without corrective action, the deficit in 2006 would hit 4.1% of GDP, against the 3.8% hoped for by the outgoing government of Silvio Berlusconi. Indeed, the gap might easily be as big as 4.6%. The euro-area's stability pact supposedly sets a ceiling of 3%.

Mr Berlusconi also came to office in 2001 claiming that his predecessors had been cooking the books, so a touch of scepticism about the new numbers is forgivable. But there is no doubt that the fiscal position has deteriorated: the “primary” surplus (ie, before interest) that was built up in the late 1990s has largely disappeared. A supplementary budget this year was inevitable; the only debate is over what sorts of measures it should contain.

Last week, the central-bank governor, Mario Draghi, argued that growth should be the “absolute priority”. But Mr Padoa-Schioppa seems to feel that fiscal discipline is more urgent, if not necessarily more important, than other economic reforms. The arguments in his favour are powerful. As a share of GDP, Italy's debt rose in 2005 for the first time in 11 years: it is now 108%. Two of the three main rating agencies have issued warnings of possible downgrades that would increase the cost of debt servicing. A failure to act could pitch Italy into a vicious downward spiral in which rising debt costs make it impossible to contain the deficit. The improving European economy may create a window of opportunity in which to implement measures that should, with luck, merely restrain demand, not suffocate it.

Yet there is a counter-argument, put forward this week, unusually, by both trade unions and employers. More deficit-cutting, said the leader of the CISL union federation, could “prevent us from latching on to the recovery”. And Luca Cordero di Montezemolo, head of Confindustria, the bosses' federation, said that the government “ought to renegotiate with Brussels” to win more time to cut the deficit.

Such views could gain wider support as the political implications of Mr Padoa-Schioppa's austerity become clearer. Spending cuts and tax rises tend to fall more heavily on the poor, whom the centre-left are pledged to defend. The main plank of Mr Prodi's election campaign was a promise to cut payroll taxes by five percentage points, so as to reduce the “tax wedge”—the difference between a worker's take-home pay and his cost to an employer. Mr Padoa-Schioppa may now seek agreement from his colleagues to postpone the payroll-tax cut until the public accounts look healthier. But that is asking a lot of politicians whose government teeters along with a wafer-thin majority.

Copyright © 2006 The Economist Newspaper and The Economist Group. All rights reserved.

Lithuania's government

Politics exam

Jun 8th 2006 | VILNIUS
From The Economist print edition

It is in a political mess, but Lithuania now has brighter prospects

Get article background

IT HELPED to bring down the Soviet Union by declaring independence in 1990. But since that moment of glory, Lithuania has been mostly a story of scandal and missed opportunity. That may be why as many as 450,000 people —a tenth of the population—have left to work abroad. The country scraped into the European Union in 2004, despite severe doubts in Brussels. Foreign investment and growth have lagged behind the other Baltics. Reform has been haphazard.

Now, however, come two signs that things are improving. First, the country's biggest industrial asset, the Mazeikiai oil refinery, has been sold to a solid owner, PKN Orlen of Poland. This ends a tawdry ten-year saga of botched deals, huge costs to the taxpayer, uncertainty and political wrangling. Second, public tolerance of corruption seems to be lessening, and the law-enforcement authorities are showing impressive new vigour in prosecuting it. That is the lesson from the other event of last week: the collapse of Lithuania's left-leaning coalition government.

What happened was that the Labour party, a populist outfit led by a Russian-born businessman, Viktor Uspaskich, split and left the government. Mr Uspaskich himself disappeared to Russia. This followed leaks that prosecutors were investigating several lurid claims, notably that the party was taking kickbacks from European Union grants, that it had breached campaign-finance limits in the 2004 election and that it had taken money from Russia. Mr Uspaskich says he is not responsible for book-keeping, and that the attacks on his party are purely political.

The big puzzle is the timing of this affair. Rumours about Mr Uspaskich's connections have swirled for years. But nobody in authority seemed to have the inclination (or power) to investigate. The same was true of other political scandals, including one involving a prominent mayor, whose lawyers have managed to stymie attempts to scrutinise his business dealings in court. The exception was the impeachment in 2004 of the then president, Rolandas Paksas. This was a scalp for Lithuania's spooks, a patriotic and russophobic lot. Their chief, Mecys Laurinkus, told parliament that the president was a threat to national security. But with Mr Paksas removed, the business of politics returned to grubby normality.

Some think that Mr Uspaskich overreached himself. “The Lithuanian elite tolerates its own corruption, but not that of outsiders,” says one politics-watcher. The real division in Lithuanian politics is not ideological, but between the well-educated ex-*nomenklatura* types who run the established parties, and populist outsiders such as Mr Paksas and Mr Uspaskich. Another theory posits a link to the sale of the Mazeikiai refinery. The disarray within the government parties made it easier to get the sale through parliament last week. It was certainly a pleasingly clean end to a decidedly murky story.

But the most optimistic explanation is that Lithuania is changing for the better. One more pointer is a scandal about leaked exam papers. As in most post-communist countries, cheating in schools and universities is habitual. But when it became known that questions in the Lithuanian-language paper for this year's school-leaving exam were on sale in advance, there was an outcry. The head of the central examinations office says he will resign; pupils are trying to sue the government; the paper will now be set anew.

Perhaps a political-science paper for adults would be a good idea. Lithuania's politicians and officials might not pass —but they would probably do better now than at any time in the past 15 years.

Copyright © 2006 The Economist Newspaper and The Economist Group. All rights reserved.

The Czech election

Victory, of a sort

Jun 8th 2006 | PRAGUE
From The Economist print edition

Czech conservatives win the election, but not power

IT WAS the best result ever for a Czech political party. Yet the 35.4% they took in the election last weekend was still not enough to give the free-market, Eurosceptic Civic Democrats more than a sniff of power. For, after a bitter campaign, the outcome was, in effect, a tie. The Civic Democrats and their allies (the Christian Democrats and the Greens) took 100 of the 200 seats in the lower house of parliament. But between them the Social Democrats, led by the outgoing prime minister, Jiri Paroubek, and the Communists also took 100.

The Communists' nostalgic view of one-party rule makes them political pariahs. But there is no obvious coalition that can be formed among the other parties. One idea is a “grand coalition” of Social and Civic Democrats. But both main leaders rule this out.

Reuters

We're off to count the votes

Mr Paroubek, whose party polled 32.3%, is fuming. He says his defeat was a “putsch” by the Civic Democrats and their allies in the security and intelligence services. On May 29th Jan Kubice, a top crime-fighter, told a parliamentary committee that mafia influence over the government threatened the state's “security, economic and financial stability”. He accused Mr Paroubek and two colleagues of obstructing an investigation into a contract killing.

Mr Paroubek denied this, and said later that the report had also wrongly accused him of child molestation. He wants a government of non-party experts. But the Civic Democrats' leader, Mirek Topolanek, is still hoping to cobble together a majority, perhaps by winning over some Social Democrats, or persuading the party not to oppose him outright. One deputy claimed this week that he had been offered a 5m koruna ($230,000) bribe to switch sides.

The new parliament will probably meet later this month, after which Mr Topolanek has 30 days to win a confidence vote. As it happens, President Vaclav Klaus is a Civic Democrat and arch-Eurosceptic, but he also dislikes Mr Topolanek. If three putative governments fail to win a confidence vote, Mr Klaus will dissolve parliament again.

Thus at least three months of bickering and instability are likely. That may jolt confidence in the Czech economy, which has been growing strongly. With the flat tax, privatisation and lean government promised by Mr Topolanek's party, the economy could do better still. But radical reform now looks unlikely. The only comfort for Czechs is that all other central European countries have wobbly governments too—and yet they are muddling along quite nicely.

Copyright © 2006 The Economist Newspaper and The Economist Group. All rights reserved.

Charlemagne

Justice by majority

Jun 8th 2006
From The Economist print edition

Should there be "more Europe" in the provision of law and order?

IN THE absence of a new European Union constitution, justice and law enforcement have emerged as the areas in which the impetus towards more integration is strongest. This might seem odd given that, by and large, the criminal law falls largely outside the union's competence. Yet only a week ago, EU members approved a "European evidence warrant", requiring police in one country to execute search warrants issued in another. And at next week's EU summit, the president of the European Commission, José Manuel Barroso, will ask for more powers to fight cross-border crime, such as drug-trafficking, fraud and terrorism.

He may not get them. But by pushing matters of crime and justice up the priority list, Mr Barroso is venturing into some of the thorniest territory in the union, on which feelings about national sovereignty, legal and police traditions and popular opinion all conflict and intertwine. Is he justified in seeking more powers? And even if he is, is it wise to do so?

The argument for what Mr Barroso calls "more Europe" begins by noting that crime increasingly crosses borders. The EU set up Eurojust in 2002 to help prosecutors co-operate in dealing with the worst cross-border crimes; its workload has since tripled. The public seems to want action: almost two-thirds of respondents to polls say that the union should do more to fight crime. Even more want greater EU efforts to deal with international terrorism and illegal migration. What might be called the deterministic approach to European affairs also holds that justice and security should be the EU's next frontier. The union has created a single market and (partially) swept away internal border controls in most member states. But there are some 27 different legal systems, some based on the Napoleonic civil code and others on Anglo-Saxon common law. This makes catching and trying crooks, who can move freely around Europe, harder.

Nobody is about to swap their national legal system for a brand new EU one. All are willing to recognise each other's legal proceedings in serious cases. But in between a host of practical problems arise in deciding which rules and standards are mutually acceptable. Hence the question: how do you resolve disputes when countries have different degrees of trust in judges, prosecutors and policemen?

At the moment, the answer is, by unanimous agreement. Everyone must agree which rules and standards to accept. And national governments then enforce (or ignore) those agreements.

Those who want "more Europe" argue that such co-operation is unnecessarily arduous and inefficient. The evidence warrant, for example, took four years to negotiate and is even now riddled with exceptions (Germany does not have to obey it in certain areas). By contrast, on the rare occasions when countries manage to negotiate something quickly, it works. The European arrest warrant was agreed in a rush, in the aftermath of September 11th 2001. It has cut the average extradition time from one EU country to another from nine months to 43 days.

This, the argument goes on, shows why it is worth changing the voting rules to make co-operation in criminal matters easier. Let it be done, suggests Mr Barroso, by “qualified-majority” vote, as with single-market matters. And let the Council of Ministers and the European Parliament set minimum judicial standards. If the politicians do not agree to this, the European Court of Justice may even force it on them. Last year, the court ruled that governments must implement EU criminal-justice agreements even when they contradict national law. It also ruled that the EU could set minimum penalties for breaches of national environmental laws.

Yet it is not for nothing that criminal justice remains primarily national. Law is essential to national sovereignty and even identity. Arguments about logic and efficiency are beside the point. Legal systems are not supposed to be efficient. They are designed to ensure that innocent people are not found guilty. If that requires inefficiencies, so be it. Anyway, legal co-operation in Europe is not that inefficient: the arrest and evidence warrants were both approved, albeit in diluted form.

When nationalism strikes back

Nor is it clear that legal decisions by majority vote would necessarily stick. As it is, the highest courts of several countries, including Germany's and Poland's, have struck down the European arrest warrant as unconstitutional (some constitutions require countries to try their own citizens, rather than extradite them under an EU law). Ways are being found around the courts' objections, but this suggests that EU involvement in criminal justice may have gone almost as far as it can.

As for the argument that the European Court of Justice may “federalise” national legal systems, that is possible but not certain. Last week, the court leant the other way, striking down an EU deal on sharing airline-passenger data, on the ground that law enforcement cannot be decided using single-market rules.

In any event, the claim that public opinion will support “more Europe” in this area is untested. Asked if they want the EU to do more in almost any area of public concern, people will tend to say yes. Asked if they want, say, their homes searched at the behest of a foreign judge, they will say no. Opinion polls are of little use when the precise phrasing of a question is this sensitive. But it is striking that European politicians who are, in other respects, far from Eurosceptic, such as Austria's Wolfgang Schüssel, have been worrying aloud that the court may be usurping the powers of democratically elected politicians.

Critics of the “top-down” constitution often say that “ever closer union” should happen only organically, in response to genuine Europe-wide concerns. Legal co-operation seems to be a possible example. But making national legal practice subject to majority vote still seems unnecessary, and it could provoke yet another backlash against the whole project.

Copyright © 2006 The Economist Newspaper and The Economist Group. All rights reserved.

Trade unions

The ties that (still) bind

Jun 8th 2006
From The Economist print edition

Corbis

Government largesse and traditional links to Labour have allowed public-sector unions to resist decline

MOST university students encounter trade unions in the musty pages of history books, if they encounter them at all. This year's batch has had a rather different experience. In a bitter three-month dispute over pay, lecturers refused to mark coursework and set exams, prompting dire headlines that thousands of would-be graduates would be left without qualifications. On June 7th students rolled out of bed to the welcome news that normal service was at last resumed—the University and College Union, the newly fused trade union for lecturers and professors, had agreed to accept a 13.1% pay rise over the next three years.

Even if students do manage to graduate, they may have trouble returning home to their proud parents, for rail workers are threatening a summer strike. Indeed, Britain's trade unions are rarely out of the news. Last year, by promising the biggest strike in 80 years, they persuaded the government to alter its plans to raise the public-sector retirement age from 60 to 65. London's tube drivers regularly threaten chaos in the capital. A proposed merger of three of the biggest unions—Amicus, the Transport and General Workers' Union and the GMB—would create a powerful ‘super-union'. Even in the long-suffering armed forces, more familiar as strike-breakers, there is talk of forming a union.

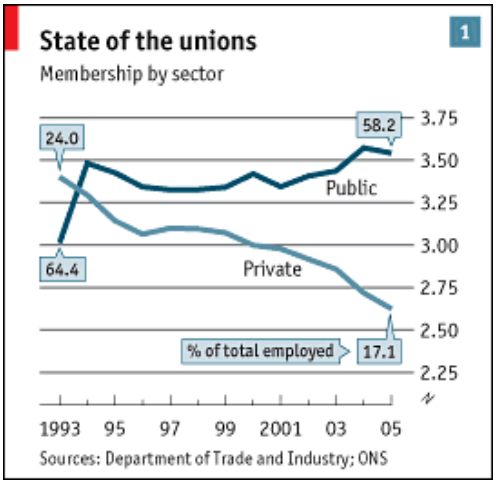
At first glance, that prominent union profile sits uncomfortably with the figures, which suggest that trade unionism is a spent force in Britain. In 1979 13.2m workers were union members; today only around 7.5m are, though the decline seems to have halted of late. Just 158,000 working days were lost to strikes in 2005, compared with an average of 7.2m a year in the 1980s and 12.9m in the 1970s.

Union membership has collapsed in most rich countries. The decline of heavy industry and the rise of service businesses where labour is highly mobile have made it hard for unions to recruit and retain members. “At one extreme you have individuals who are in such a strong position that they don't need unions to bargain for them,” says Richard Hyman, of the London School of Economics. “At the other you have people in low-skilled, insecure jobs with short-term contracts and a lot of staff turnover.” William Brown, at Cambridge University, points out that globalisation gives bosses a powerful stick to control their workers with: “If you have a strike today, the first response of an employer may be to outsource everything.”

Only in the public sector—safely insulated from the disciplines of the market—have these forces been resisted. Public-sector unions have received a recent boost from New Labour's spending splurge, which has created 700,000 state-financed jobs. Even so, public-sector workers account for only a little more than a fifth of the nation's payroll. But the union members among them now outnumber their privately-employed comrades (see chart 1). They also do most of the striking (see chart 2).

Politics, too, has played its part. Margaret Thatcher curbed union power, prohibiting secondary strikes and closed shops, and requiring unions to

ballot workers before calling a strike. Tony Blair—mindful that union militancy in the 1970s was one reason for two subsequent decades of Tory hegemony—has shied away from too close an association with organised labour, coining the slogan “fairness, not favours” during his first term. His crusade to reform public services, often with the help of private firms, has been pursued in the teeth of union opposition. He has resisted in other areas, too—ignoring, for example, calls to adopt the European working-time directive designed to limit working hours.



Yet this independence is at least partly illusory. For all his rhetoric, Mr Blair has passed several important laws that the unions are keen on. He introduced a minimum wage (which has since risen faster than inflation) and signed the European Union's Social Chapter, which strengthens workers' rights. More recently, New Labour has taken up the unions' campaign for “work-life balance”—by, for example, giving new mums more time off work. But by passing laws to secure rights for the entire workforce that were previously obtained by collective bargaining, Mr Blair may, paradoxically, have undercut the unions by reducing their attractiveness.

Whatever Mr Blair's personal inclinations, the traditional links between the Labour Party and the unions that gave it birth still count in a crunch. Unions provide more than half of the party's money. Last week, when the Labour Party published a proposal on reforming party financing, it recommended limiting donations from companies and businessmen—the main sources of Tory cash—but exempted the unions from the new rules.

As the party's electoral appeal has waned, the influence of the unions has increased. Facing a difficult election in 2005, the government committed itself to a shopping-list of union demands known as the “Warwick Agreement”. This was intended to reinforce what had become a strained relationship and ensure that union contributions continued to flow. Ministers also postponed until after the election discussions about raising the retirement age for public-sector workers.

But tougher times may lie ahead. Gordon Brown, the chancellor, warned on June 6th that the growth in public spending would soon fall from 5% to 2% a year. As spending declines and reforms bite, public-sector employment is likely to dwindle—and with it the unions' biggest remaining source of strength.

Copyright © 2006 The Economist Newspaper and The Economist Group. All rights reserved.

The East London raid

Disgruntled but not furious

Jun 8th 2006
From The Economist print edition

Many Muslims still give police the benefit of the doubt

MUSLIMS in modest Forest Gate, in East London, have been groaning under the weight of media attention since 250 police, suspecting a terrorist plot, raided a little terraced house in Lansdown Road early on June 2nd. Three streets have been cordoned off while police search the area. Journalists huddle at the police line, cameras and notebooks at the ready, swooping on hapless passers-by for colour. Residents are escorted in and out.

Police say they had a strong tip that a "chemical device" was being built in the house, though as of June 8th they had yet to find any proof. Two brothers of Bangladeshi origin—Abul Koyair and Mohammed Abdul Kahar, both in their early 20s—were arrested on suspicion of terrorism. Mr Kahar, the elder, was shot in the shoulder during the raid, though by whom is not clear. On June 7th the courts granted police extra time (until June 10th) to question the two. Both protest their innocence.

Many residents draw a parallel with the shooting of an unarmed Brazilian electrician, Jean Charles de Menezes, by police officers last summer, shortly after the London bombings. They suspected him of being a suicide bomber and fired before they knew better. Many in Forest Gate see the wounding of Mr Kahar in a similar light. (A report by the Crown Prosecution Service, reviewing the findings of an independent inquiry into the fatal shooting of Mr de Menezes, is expected this month.)

As the days pass and nothing untoward is found in Lansdown Road, some in the neighbourhood are growing unhappier about the arrests. One former school-friend of the two in jail describes them as "good boys". Abdul Aziz, an estate agent of Bangladeshi origin who worshipped with them at a local mosque, is worried about the slur on his origins. "They have found no evidence, so how can I trust the police now? We are shocked, we feel shame as Bangladeshis." But others, including two young Muslim barbers, defend the police, saying that IRA suspects would have been treated in the same way.

Some commentators say they see fury building up among local Muslims. Most, in fact, appear fed up rather than enraged by the disruption to their daily lives. In true British style, many are cross about the restricted parking in the cordoned-off roads. Others dislike the intrusion of journalists. One Muslim newsagent pleads, only half in jest, for "no more paparazzi".

But this less-than-militant atmosphere has not prevented some groups from seeking to foment trouble. The far-left Respect Party, founded by George Galloway, a maverick politician, to oppose the Iraq war, toured Forest Gate, inviting its residents to a meeting organised for June 6th.

Around 100 people turned up—an odd mix of white middle-aged socialists and local Muslims. They heard Moazzam Begg, held until March 2004 at the American detention centre in Guantánamo Bay, discuss his time there. Yvonne Ridley, a former journalist who converted to Islam, urged Muslims to stop co-operating with the police. She annoyed the Muslim Council of Britain, whose deputy secretary-general, Daud Abdullah, called such talk "un-Islamic". Local Labour MPs asked Muslim groups to keep residents calm.

More dramatic things may happen. The Saved Sect, a radical Islamist successor to the banned Al-Muhajiroun group, is said to be planning a march on the local police station on June 9th. If police continue to find no evidence of wrongdoing, Muslim anger may build and such groups benefit. At present, however, many in Forest Gate accept, grudgingly, what politicians and police say—that such raids are the price of increased vigilance against terrorism.

Copyright © 2006 The Economist Newspaper and The Economist Group. All rights reserved.

PRINTABLE PAGE VIEW SPONSORED BY

About sponsorship

July 7th bombings

Busy signal

Jun 8th 2006
From The Economist print edition

The London Assembly notes the hiccups, not just the heroes

LONDON responded to terrorist attack on July 7th in true Blitz style: rescuers were heroic, and ordinary citizens showed compassion and fortitude. Or so the politically correct version goes. A report this week from the London Assembly takes a sterner line. In fact, radios failed to work, medical supplies were lacking, some ambulances arrived inexplicably late and traumatised people were left to wander off.

This is the third official report into the bombs on tube and bus that killed 56 people last year and injured hundreds more. In May the Home Office offered a “narrative” of events but cast blame only on the terrorists. A parliamentary investigation concluded that the intelligence services, stretched thin, had done their best. The London Assembly's take on the matter will not satisfy those who want an independent public inquiry. But it has, at least, got beneath the gloss.

The response to the July 7th bombings was chaotic, and in ways that ought to have been preventable. The emergency services had no coherent plan in place to care for those who survived, the report suggests. But most crippling were the communication failures.

Police, ambulance workers and firefighters were unable to talk to each other underground; only the radios of the transport police worked in the tunnels. The emergency services had to rely on runners to pass information to and from disaster areas. Yet a report on a big fire at King's Cross tube station had drawn attention to precisely this problem in 1988.

Communications above ground were not much better. Rescue workers competed with bewildered bystanders for access to overloaded mobile-phone networks. The City of London Police, for its part, asked one wireless operator to favour certain rescue workers by limiting service for ordinary users. Earlier, a body headed by the Metropolitan Police had decided this was unnecessary.

Richard Barnes, who chaired the assembly's July 7th review committee, says the report is not meant to disparage the work of the rescuers but rather to fix the problems they encountered. Almost a year later, the situation has barely improved: a new digital radio network for London's underground, for example, is running behind schedule. The assembly plans new hearings in November to hold various feet to the fire.

Copyright © 2006 The Economist Newspaper and The Economist Group. All rights reserved.

Britain's airports

Landing room

Jun 8th 2006
From The Economist print edition

The fight for BAA may hasten its break-up

“ONE big monopoly” is the term Michael O'Leary uses when he is being polite about BAA, which owns busy Heathrow airport as well as Stansted and Gatwick, two other London airports. The rest of the time the head of Ryanair, a big low-cost airline, hauls out phrases like “overcharging rapists”. Nigel Turner, the chief executive of bmi, another British airline, says BAA has “effective monopolies” in London and Scotland, and Willie Walsh, who runs Heathrow's biggest user, British Airways, grumbles at BAA's slow investment, high charges and inefficiency.

So it is no wonder that most airlines were jubilant last month when the Office of Fair Trading, a competition regulator, said it might investigate Britain's airport market, which many took to mean that BAA might be broken up. They were even happier to learn last week that BAA, fighting what was then a hostile takeover bid by Grupo Ferrovial, a Spanish company, was itself considering selling Gatwick airport to buy its shareholders' loyalty.

But on June 6th the hostile bid became an agreed one: BAA accepted a £10.1 billion ($18.8 billion) offer from Ferrovial, 50% more than the company was worth when the takeover was launched in February. Ferrovial has said that it plans to “keep together” London's airports. It may change its mind, however. On June 7th Moody's, a credit-rating agency, responded to the debt-financed deal by downgrading some of BAA's bonds to junk. Ferrovial may need to sell assets to meet higher borrowing costs.

It is not hard to see why BAA, together or dismembered, is attractive. Air travel in Britain is booming, with passenger numbers expected to more than double, to around 500m a year, by 2030 (unless restrictions on aircraft emissions were to dampen their enthusiasm (see article). BAA holds the key to this market: Heathrow is Europe's most popular airport, in part because it was foolishly built next to a crowded and wealthy city that now resents the nuisance it causes.

And in the airport business, success breeds success. Heathrow's popularity means that it benefits from a “network effect”: it can match incoming passengers with a multitude of connecting flights. Airlines are also attracted by its fees, which are capped by a regulator.

Despite the caps, BAA is making more money than it knows what to do with. Its directors revealed the true state of affairs when they were trying to fend off Ferrovial's first, lower bid. They promised, without obvious strain, to increase BAA's dividend by 40% and return £750m to shareholders. Small wonder that BAA's Spanish suitor raised its bid.

More telling is the fact that Ferrovial remained keen after the OFT threatened to crack down on anti-competitive practices in the market. “Breaking up BAA would allow for a more relaxed regulatory regime,” says David Starkie, an aviation expert. “The break-up value would be far greater than the value of the existing company.”

The reason is that price regulation has created a mishmash of conflicting policies and perverse incentives. BAA has had little reason to strive for more efficiency in its London operations, as extra gains would be taken away from it in the next price-setting round. Nor has it made sense to invest where it would make the best return, for until recently prices were based on BAA's average return on regulated assets.

So BAA has diligently siphoned income from profitable Heathrow and pumped it into creating more capacity at Stansted, an airport that has rarely made a profit. But because prices are capped at Heathrow, there has been little motivation for airlines there to move flights to less popular airports. The expansion at Stansted arguably fostered the low-cost airline industry by offering it cheap landing rights there but it failed to relieve congestion at Heathrow.

Breaking up BAA into competing airports would let Heathrow increase its fees to reflect its popularity. That would make its rivals more appealing—at least until they raised their own fees, giving Mr O'Leary something new to complain about.

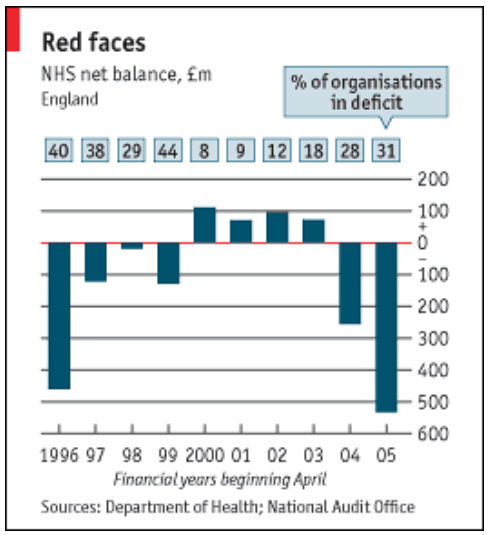
Copyright © 2006 The Economist Newspaper and The Economist Group. All rights reserved.

Health-service finances

Blot on the landscape

Jun 8th 2006
From The Economist print edition

Embarrassing deficits spoil the outlook for Labour



TOWARDS the end of Labour's "Black April", Patricia Hewitt claimed that the National Health Service had just enjoyed its best year ever. The health secretary's assertion was as politically inept as it was deliberately provocative. However well the NHS might have provided health care from April 2005 to March 2006, it had contrived to rack up a deficit despite record financing from the taxpayer. The debacle prompted the departure in March of Sir Nigel Crisp, the chief executive of the NHS since 2000.

On June 7th, Sir Ian Carruthers, his acting successor, studiously avoided any mention of "best year ever" when reporting on improvements in the health service in 2005-06. More appropriately, he described the NHS's financial position as "a blot on the landscape".

According to the National Audit Office, the health service in England ran a deficit of £536m in 2005-06, more than double its shortfall of £251m in 2004-05 (see chart). Of its 600 organisations, 31% were in deficit in 2005-06 compared with 28% in the previous financial year.

The lurch into the red over the past two financial years reflects poorly on a government that has poured money into the NHS. In the seven years to 2005-06, the health-service budget doubled. To taxpayers and voters alike, it seems extraordinary that there should be any deficits at all after such a prolonged period of largesse.

Naturally, Labour ministers strive to put the best possible gloss on the figures. The latest line is to point out that the overall shortfall of £536m is somewhat lower than had initially been expected. In December, the NHS forecast a deficit of over £600m in 2005-06. By March it seemed likely to reach £800m.

The snag is that, looked at another way, the health service's finances in 2005-06 have turned out worse than predicted in December. The deficit is the difference between the gross shortfall of organisations in trouble and the surplus in the rest of the NHS. The gross deficit for 2005-06 was £1.28 billion, worryingly higher than the forecast of £950m made in December.

Another line that ministers have peddled ever since the deficits for 2005-06 came to light is that they are concentrated in relatively few organisations. According to the latest figures, just over a tenth of NHS bodies account for 70% of the gross deficit. Yet the awkward reality is that almost a third of NHS organisations are in the red despite receiving so much extra money for so long. This makes it hard to play down the shortfalls as merely local.

However deftly the figures are spun, it is impossible to disguise the fact that the NHS veered out of financial control last year. Now Labour's overriding priority is to regain a grip on its finances. Ms Hewitt has pledged that the NHS will return to financial balance in 2006-07; and she has promised the publication of quarterly figures starting this summer.

Eliminating a deficit of £536m might appear a trivial task given a total budget that will reach £84 billion in the present financial year. But organisations mired in the red will find it extremely difficult to sort their affairs out, the more so as they are expected to repay the debt as soon as is feasible. According to the National Audit Office, the cumulative debt in the hospital sector has reached £1.1 billion.

As if this were not enough, cost inflation will absorb much of the extra money going into the health service. The King's Fund, a health-policy think-tank, has calculated that higher pay and other cost pressures will gobble up nearly three-quarters of the cash increase for the hospital sector in 2006-07.

Not before time, the NHS will have to rediscover the lost virtues of economy and efficiency. For one thing, the

hiring boom that raised the NHS payroll by over 300,000 to almost 1.4m—an increase of 29%—between 1997 and 2005 is over. For another, the health service will have to use its staff more effectively by changing the way that they work. Labour's reforms should help. In particular, a new payments system, which ties a hospital's revenues much more tightly to how many treatments it carries out, could prove a powerful lever to raise productivity.

The government still faces tough decisions. The deficits are mainly in the south of England where there are areas of over-capacity. Tackling them will require some hospitals to close or to cut facilities, which will be unpopular with voters. With the Conservatives ahead in the polls, such decisions will be a test of Labour's mettle.

Copyright © 2006 The Economist Newspaper and The Economist Group. All rights reserved.

PRINTABLE PAGE VIEW SPONSORED BY

About sponsorship

Disability rights

Happy shoppers?

Jun 8th 2006
From The Economist print edition

Overzealous campaigners may lose support for a good cause

THE case for rights for the disabled seems incontestable. Many struggle getting onto buses, into shops and into employment. To ease their lot, the government in 2004 and 2005 widened the definition of disability and increased the help to which disabled people are entitled. Those with HIV, cancer, multiple sclerosis and many mental health problems are now covered: one in six people in Britain qualify as disabled. The law requires all those providing services to make “reasonable adjustments” for those with impairments. If they do not, they can be sued.

On June 5th Joanne Holland, who uses a wheelchair, said that she was doing just that. She has brought a suit under the new law against Arcadia, which owns a chain of clothes stores, because she was unable to get into one of its shops.

Ms Holland is just one of a new wave of disabled people and campaigners on their behalf who are taking advantage of the new rules to define the boundaries of their entitlement. The Slow Food Movement, which argues for more relaxed eating habits, organised a food and wine tasting in Manchester last year. A deaf woman wanted to attend and asked the group to provide an interpreter, which the volunteers could not afford. Instead they offered a free ticket for the woman's partner (himself an interpreter), which she rejected. Fearing prosecution, the group had to cancel its meeting. Some 40 people had already bought tickets.

The organisation which some hold responsible for the new militancy is the Disability Rights Commission (DRC), a government-funded body set up in 2000. Earlier this year the DRC launched a provocative advertising campaign, “Are we taking the Dis?” It makes use of some alarming statistics.

One poster makes much of the fact that disabled 16-year-olds are twice as likely to be out of education or out of work than their non-disabled peers. When pushed, the organisation admits that its figures include young people with learning problems, who are far less likely to hold down demanding jobs or gain stringent qualifications than youngsters who do not suffer from the same.

Another poster asserts with horror that 50% of parents with learning disabilities have their children removed into the care of the state. Neil Crowther, head of policy at the DRC, concedes that some children do need to be protected from inadequate parents (though the DRC's campaign material is strangely silent on this point). He also recognises that the commission's use of statistics is impressionistic. He justifies it, however, on the grounds that his organisation is challenging the “lazy fatalism” that restricts the lives of the disabled.

Such laziness is apparently widespread. The DRC has recently campaigned against chip-and-pin cards, threatening to prosecute retailers who do not provide other payment methods. It has also criticised websites it deems “inaccessible”, although many providers complain that the DRC refuses to say what would be acceptable instead. A month ago the commission lambasted a teachers' union for daring to question whether all children with special needs should be taught in ordinary schools.

Then there are trains, which will have to be “accessible” by 2020, kitted out with wheelchair space, adapted toilets and a plethora of communication devices for the disabled traveller. South West Trains will withdraw eight trains next month because the lettering in the indicators, which alert passengers to station stops, is a little too small for the new regulations. The trains will be shunted into sidings, a move described as “ludicrous” by the company that leases them out. Around a thousand carriages will be scrapped ten years early because of such rules. Roger Ford, a transport writer for *Modern Railways*, is so incensed by the insistence on rights that he calls activists the “disability Taliban”.

And here lurks real danger for campaigners for the disabled. By aping the methods of previous civil-rights campaigns, they may end up achieving less than they could have done by quieter lobbying. And that would be a real disservice to a good cause.

Copyright © 2006 The Economist Newspaper and The Economist Group. All rights reserved.

PRINTABLE PAGE VIEW SPONSORED BY

About sponsorship

The Tories and Europe

Still spooked

Jun 8th 2006
From The Economist print edition

David Cameron's European problem has not gone away

THE Tories have what a psychoanalyst might term a destructive relationship with Euroscepticism. Hostility to the European Union (EU) is still a powerful passion for many of them. But once let loose, it tends to damage the party. So most Conservatives have been happy to ignore Europe as David Cameron has set about making the party electable again. There is little pressure from voters for the party to come up with new ideas about Europe either. And yet the Tories are in the midst of trying to implement a new policy that, if successful, would irritate their allies among other centre-right parties in Europe and also split their own members of the European Parliament (MEPs).

William Hague, the shadow foreign secretary, reiterated the plan in a speech on June 7th. He had some rather unTory praise for the European Commission's efforts to support the single market, and for the EU's foreign-policy success in expanding to take in its eastern neighbours. Admittedly, he also attacked those who think that integration is the answer to Europe's woes; he insisted that the EU constitution was dead; and he proposed a transatlantic free-trade area, which sounds rather too pro-American for some Europeans. But he ruled out even considering withdrawal from the union. And, in the bit that most Tory insiders paid heed to, he insisted yet again on the case for forming a new group in the European Parliament.

This insistence reflects one of the few clear promises Mr Cameron made when running for the party leadership: to quit the centre-right European People's Party (EPP), an alliance that forms the biggest block in the European Parliament. Mr Cameron made this pledge in a bid to win over Eurosceptics at a time when he was trailing David Davis in the leadership race. But his view seems to be deeply held: students of his past say he was a dissenter when the Tories joined the EPP in 1992, and that his period working in the Treasury at the time when the pound was ejected from Europe's exchange-rate mechanism instilled a hearty suspicion of all pan-European schemes. But the pledge to quit the EPP has since become a burden.

Mr Cameron has clarity on his side. The EPP favours closer European integration, which the Tories certainly do not. Mr Cameron thinks the party should not say one thing in Westminster and another in Brussels, so leaving the block is the logical option. Yet there are compelling reasons not to take it. Membership of the EPP has won Tory MEPs a vice-chairmanship of the alliance, more speaking time in debates and several influential posts on parliamentary committees. Nor has it constrained them in any way from campaigning against the EU constitution. Leaving could result in Tory MEPs sitting with some peculiar xenophobic oddballs from the Czech Republic or Poland. Of the 26-strong group of Tory MEPs, a majority want to stay. Some may even be ready to risk losing the party whip to remain. As if that were not enough, Angela Merkel, the German chancellor, has written to Mr Cameron urging him to stay in the EPP. Even John McCain, an American senator whom many Tories admire, has counselled against leaving.

Mr Hague is still trying to negotiate a new alliance with some central European MEPs. But it is proving a lot harder than expected—which may be why he barely referred to the subject in his speech this week. Few other mainstream centre-right parties are ready to leave the EPP solely to save Mr Cameron's blushes.

Copyright © 2006 The Economist Newspaper and The Economist Group. All rights reserved.

PRINTABLE PAGE VIEW SPONSORED BY

About sponsorship

Bagehot

Hard cop, soft cop

Jun 8th 2006
From The Economist print edition

On public-service reform, Tony Blair and David Cameron don't disagree; they just have different agendas

AT A government-sponsored conference on public-service reform this week, Tony Blair told 200 senior public-sector employees: “There is a basic deal here. Investment for results. I know that if having put in this extra money, we can't show clearly, demonstrably that the service has got radically better, then the consent from the public for investment is in jeopardy.”

Elsewhere in London at almost the same moment, David Cameron, the Tory leader, was extolling the public-service ethos. He apologised on behalf of his party for having “sometimes risked giving the impression that we see those who work in the public sector as burdens on the state rather than dedicated professionals who work hard to improve the quality of people's lives.” The left-leaning *Guardian* newspaper summed up this apparently shocking reversal of roles as “Labour and Tories swap sides in public-sector debate.”

In fact, the only thing that's surprising is that anyone should be surprised. Part of the explanation for Mr Blair's toughness and Mr Cameron's emollience is Britain's electoral north-south divide. Labour is losing the support in the London suburbs and prosperous south-east that helped sweep it into office in 1997. Yet despite the Tories' recent revival, enthusiasm for Mr Cameron's party runs out rapidly north of Birmingham.

In the south-east, the public sector accounts for a bit over a third of the economy. In some parts of the north it is over three-fifths. Southern voters feel over-taxed and are increasingly convinced that the services they are paying for have not improved as much as they should have. Northern voters also grumble about the government, but they fear the return of a Conservative Party which, in the past, was never shy to express its distaste for the public sector. If Labour is to hold on to power after the next election, it must convince voters in the south that they are getting value for money from reformed public services. If the Conservatives are to regain power, they must claw their way back into electoral contention in northern cities whose economies have become dependent on a lavishly funded state.

The other reason for the contrasting messages is that the two men are at opposite stages in their careers. Mr Cameron is mainly in the business of trying (quite successfully) to be liked. Mr Blair no longer cares whether he is liked. He is in a race against time to deliver on his commitment to make massively indulged public services responsive to the needs of ever-more demanding consumers. While Mr Cameron is smoothly appealing and deliberately opaque about what he would actually do once in office, the prime minister is a scarred and grizzled veteran, battling in the trenches against the forces of inertia and small-“c” conservatism.

Right on cue, a day after Mr Blair's speech, Paul Miller, the chairman of the British Medical Association's consultants

committee, launched a stinging attack on the government's attempts to reform the health service (NHS), singling out as a particular waste of money the independent-sector treatment centres that will soon carry out 10% of all NHS elective surgery.

Dr Miller failed to mention the galvanising effect that only a handful of independent treatment centres have had in driving down waiting times by providing competition for the members of his union. Nor did he criticise the huge salary increases consultants have received in exchange for very little. Nevertheless, the BBC thought Dr Miller's insights about the government's “meddling” and “incompetence” sufficiently important to lead its news bulletins for an entire morning. Like the nurses who recently shouted down the health secretary, Patricia Hewitt, Dr Miller fails to see that the signal he sends to taxpayers is not just that the government is useless, but that no amount of money can fix the NHS.

That is one of many frustrations for Mr Blair. But perhaps the greatest is that it is only now, very late in the day for him, that the government has come up with a robust model for improving public services. He is acutely conscious of the time, money and political capital that have been squandered.

Mr Blair's model is based on four principles. The first is that although too many centrally imposed targets are dangerous, some elements of top-down performance management are needed, including the setting of minimum standards and performance assessment. Direct interventions can be effective in rooting out the seriously bad, for example when an inspection identifies a failing school. The second is the spur of competition: purchasers of services must be able to choose among competing providers. Thirdly, bottom-up pressure to improve comes from giving consumers of services either choice or, when that is not possible (as in the supply of policing), “voice”. Finally, the public service must constantly be developing new capabilities and new patterns of working—for example, by encouraging GPs to carry out many of the diagnostics and minor surgical operations that used to be the preserve of hospitals.

There is no alternative

But the mood of the conference at which Mr Blair set out these sensible and, one might have thought, largely uncontroversial ideas was distinctly sceptical. To most public-sector workers, the “self-sustaining change” that Mr Blair says his approach will promote is exactly what they would prefer to avoid. Like Garbo and Dr Miller, what they really want is to be left alone.

There is little chance of that. Before Mr Blair spoke, Gordon Brown, the chancellor, repeated his budget warning that public-spending growth will soon slow from 5% to 2% a year. That will put a premium on innovation and greater efficiency. Mr Blair may not be around long enough to see his model fully implemented. But neither Mr Brown nor Mr Cameron, for all his honeyed words, is fool enough to try anything very different.

Copyright © 2006 The Economist Newspaper and The Economist Group. All rights reserved.

Economist.com
SCIENCE
TECHNOLOGY QUARTERLY
PRINTABLE PAGE VIEW SPONSORED BY

About sponsorship

Science fiction and reality

Jun 8th 2006
From Economist.com

A discussion with Tom Standage, Technology Editor of *The Economist*

"As you start to make robots smarter, you also in some ways make them less predictable, because they become more complex systems. Very complex systems tend to go wrong in unpredictable ways… If you're looking for a cast-iron guarantee that a robot is not going to hurt someone, it's like asking for the same guarantee with a person, and you just can't give it."

Copyright © 2006 The Economist Newspaper and The Economist Group. All rights reserved.

Economist.com
PRINT EDITION
TECHNOLOGY QUARTERLY
PRINTABLE PAGE VIEW SPONSORED BY

About sponsorship

On the move at last?

Jun 8th 2006
From The Economist print edition

Energy: Fuel cells capable of powering portable electronic devices are finally heading towards the marketplace

ARE you a member of the power elite? You will find out at the end of this month—for that is when Medis Technologies, a small firm based in New York, plans to distribute hundreds of its new Power Pack portable fuel cells to a select group of business people, politicians and opinion formers. Each fuel cell is about the size of a cigarette packet, weighs 150 grams, and generates electricity by combining oxygen from the air with an internal fuel. It can be plugged into a hand-held device (such as a mobile phone, music player or portable games console) to power or recharge it, and has sufficient capacity to provide around 30 hours of talk-time on a mobile phone, or 60-80 hours of playback time for an iPod music-player. Once it has been exhausted, the Power Pack can be thrown away. “We will have them on sale by the end of 2006,” says Robert Lifton, the boss of Medis. At last, it seems, fuel cells capable of powering portable devices are coming to market.

Fuel-cell based rechargers are “a good transition to full commercialisation for fuel cells,” says Sara Bradford, an analyst at Frost & Sullivan. Integrating fuel cells directly into electronic devices such as mobile phones is complicated, but stand-alone rechargers can simply plug into existing devices. Another challenge for fuel-cell-powered devices is that standards for fuel-refill cartridges have yet to be agreed. Medis's recharger, being disposable, neatly sidesteps this problem. This is a consequence of its low cost, which is in turn the result of its unusual design. Most fuel cells being developed for portable use are based on direct-methanol technology, which requires an expensive platinum catalyst. Medis's fuel cell, however, is based on sodium borohydride, which is simpler and cheaper. Each Power Pack can be made for around $5, says Mr Lifton, which is comparable to the cost of the platinum alone in a direct-methanol fuel cell. (Medis plans to sell its Power Packs to wholesalers for $8, and the retail price will be $12-15.)

Clever though this is, it is just a stepping stone towards the direct incorporation of fuel cells into portable devices and, in particular, laptops—the application that remains the industry's holy grail. It is not simply the case of slotting in a fuel cell in place of the battery. Instead, it involves switching from a battery to a hybrid power source that combines a battery with a fuel cell, argues Jim Balcom of PolyFuel, a leading maker of components for direct-methanol fuel cells based in Mountain View, California. “People think it's batteries against fuel cells—it's not,” he says. “It's about battery augmentation.” In a laptop, the fuel cell will provide a constant amount of power, topped up by the battery during periods of peak demand. This hybrid power source will provide at least double the running time of today's battery-powered systems—with the option of using extra fuel cartridges.

The complexity of such systems, along with their high cost, relatively low efficiency (most prototypes still produce more heat than electrical power) and the unresolved question of standards for refill cartridges, collectively explain why fuel-cell-powered laptops have been perpetually two years away for so long, says Ms Bradford. But, she says, “I think it really could be two years away this time.” Laptops powered by direct-methanol fuel cells are getting close to market, she says; every year the prototypes get smaller and more efficient. Demand is clear, and today's lithium-ion battery technology is reaching its theoretical limits.

Mr Balcom's firm has licensed its fuel-cell membrane technology to several large electronics firms, including NEC and Sanyo, the world's biggest maker of rechargeable batteries. PolyFuel's shipments of membranes are ramping up steadily, and the company's customers are preparing for commercial launch of fuel-cell-based portable devices in 2007-08, he says. They anticipate that 30% of laptops will incorporate fuel cells, “though we would be happy with 10%” says Mr Balcom. (Around 65m laptops were sold in 2005.)

Business travellers are expected to be the keenest adopters of the new technology. But will they be allowed to use fuel cells on planes? Earlier this year the International Civil Aviation Organisation, which regulates such matters, voted to allow the use of direct-methanol fuel cells that meet certain criteria from January 2007—a “giant step”, says Ms Bradford. But so far the rules do not allow the use of borohydride fuel cells, such as the Medis design. Mr Lifton insists that there is no regulation that prevents the use of his company's device on aircraft, however, since “it is no more flammable or toxic than a T-shirt or a newspaper.” If regulators disagree, he says, “I'll sue them.”

In short, portable fuel cells must still overcome both technical and regulatory hurdles, but progress is being made on both fronts. Ms Bradford expects sales of 3m devices next year, and 80m in 2012. Most people will use a fuel cell in a portable device long before they encounter one in a car, Mr Balcom predicts. And for the recipients of Medis's fuel cell, which provides a glimpse of this future, that could be as soon as this month.

Copyright © 2006 The Economist Newspaper and The Economist Group. All rights reserved.

Economist.com
PRINT EDITION
TECHNOLOGY QUARTERLY
PRINTABLE PAGE VIEW SPONSORED BY
About sponsorship

Waiting for the space elevator

Jun 8th 2006
From The Economist print edition

Space: After decades of speculation, the idea of a "space elevator" capable of lifting payloads into orbit is being taken a bit more seriously

FOR decades science-fiction writers and engineers have dreamed of building a lift from the Earth's surface into space. Konstantin Tsiolkovsky, a Russian scientist, suggested a similar idea more than a century ago, and in 1979 Arthur C. Clarke wrote an entire novel, "The Fountains of Paradise", about the construction of a space elevator. Whisking satellites, space probes and even people into orbit on a giant elevator appears far more civilised than expensive, unreliable rockets.

AFP

Going up, slowly?

Now this fanciful dream is taking its first tentative steps towards reality. Two companies, LiftPort and X-Tech Projects, have been founded to pursue commercial space-elevator projects, and America's space agency, NASA, has provided a $400,000 prize-fund for an annual competition, the Space Elevator Challenge, to encourage space-elevator research. At this year's contest, to be held in October, 21 teams will test their designs for cables, and robotic lifts to climb up them.

The concept of a space elevator is simple enough. An orbiting satellite is linked to the surface of the Earth by a cable, which vehicles then climb up and down. However, to reach a satellite in geostationary orbit—which takes exactly a day to circle the Earth, and so seems to hover above a single spot on the equator—the cable would have to be nearly 35,800km (22,250 miles) long. Such a cable would have to be phenomenally strong and light to support its own weight.

It has long been recognised that carbon nanotubes, tiny molecular-scale threads of carbon atoms, would be strong enough to build such a cable. (Even though nanotubes were discovered only in 1991, Dr Clarke suggested something very similar in his book: a "hyperfilament" made of "pseudo-one-dimensional diamond crystal".) But it is not yet possible to produce nanotubes in sufficient quantity, or to knit them into a rope with anything like the strength of the tiny, individual tubes. So far, the strongest commercially available fibre of the required weight is around 4% as strong as a space elevator would require, says Ben Shelef, co-founder of the Spaceward Foundation, which runs the space-elevator competition. He notes that if researchers can increase the strength of that fibre by 50% a year, they will produce a fibre strong enough by 2013. Such speedy progress is not unusual in a new field.

The next problem is to work out how to power the lifts, which will take several days to make the long trip into orbit. Carrying fuel or batteries on board would be impractical, as this would add massively to the weight of the lift, and reduce its carrying capacity. So both LiftPort and X-Tech are designing climbing modules equipped with solar panels that receive power from a laser beamed from the ground. The technology to make this possible is still under development, but compared with the challenges posed by the cable, it's straightforward, says Mr Shelef.

Then there is the danger of orbiting space debris left over from decades of launches, which could damage or destroy the cable. Mr Shelef proposes using radar to detect chunks of debris before a collision, and then steering the cable around them. Fixing the bottom of the cable to an ocean-going platform would make it easy to move, he suggests.

If these problems can be overcome, building a space elevator is expected to cost around $10 billion—a modest sum by the standards of space exploration. LiftPort estimates that satellites could be launched at around one thousandth of the cost of using rockets. But NASA is sceptical, despite supporting the space-elevator competition. “Since the basic material has yet to be developed, it is still in the research phase and is not a current programme at NASA,” says a spokesman.

In February LiftPort conducted one of the most elaborate space-elevator tests so far. Hot-air balloons secured a cable in place for six hours, and robots then climbed up and down it. The cable reached only a mile into the sky, it is true. But engineers have, in effect, pressed the “call” button—though as so often when waiting for a lift, there is now likely to be a long wait until it arrives.

Copyright © 2006 The Economist Newspaper and The Economist Group. All rights reserved.

Economist.com
PRINT EDITION
TECHNOLOGY QUARTERLY
PRINTABLE PAGE VIEW SPONSORED BY

About sponsorship

Sounds good?

Jun 8th 2006
From The Economist print edition

Software: “Music intelligence” systems that can distinguish hits from misses could change the way pop music is made and marketed

THE versificator, a machine described in George Orwell's novel “1984”, automatically generated music for the hapless masses. The idea of removing humans from the creative process of making music, an art form so able to stir the soul, made for a good joke when the book was published in 1949. But today, computer programmers working in a new field called “music intelligence” are developing software capable of predicting which songs will become hits. This surprisingly accurate technology could profoundly change the way pop music is created.

The software uses a process called “spectral deconvolution” to isolate and analyse around 30 parameters that define a piece of music, including such things as sonic brilliance, octave, cadence, frequency range, fullness of sound, chord progression, timbre and “bend” (variations in pitch at the beginning and end of the same note). “Songs conform to a limited number of mathematical equations,” says Mike McCready of Platinum Blue, a music-intelligence company based in New York, that he founded last December. Platinum Blue has compiled a database of more than 3m successful musical arrangements, including data on their popularity in different markets.

To the human ear, music has changed a lot over the years. Music-intelligence software, however, can reveal striking similarities in the underlying parameters of two songs from different eras that, even to a trained ear, seem unrelated. According to Platinum Blue's software, called Music Science, for example, a number of hit songs by U2 have a close kinship to some of Beethoven' s compositions. If a song written today has parameters similar to those of a number of past hits, it could well be a hit too.

Carlos Quintero, a producer and remixer at Orixa Producciones in Madrid, recently tried out another music-intelligence system, called Hit Song Science (HSS). “It practically left me in shock, it's stunning,” he says. Mr Quintero's production company now has the most promising demo songs it receives from aspiring musicians evaluated by Polyphonic HMI, the Barcelona-based developer of HSS and Platinum Blue's only serious competitor. (Both companies perform analyses in-house, rather than selling software.) The results—consisting of a graph, numerical scores, computer-generated comments and suggested changes—help Orixa's managers decide which songs to produce. Then, during the recording and post-production phases, Orixa uses HSS to reanalyse successive

versions of each track for fine-tuning.

Belief in music intelligence is spreading, as Polyphonic HMI and Platinum Blue rack up bull's-eye predictions of success, including “Candy Shop” by 50 Cent, “Be the Girl” by Aslyn, “Unwritten” by Natasha Bedingfield, “She Says” by Howie Day, and “You're Beautiful” by James Blunt. Still, labels that use music intelligence generally prefer to keep quiet about it, so non-disclosure agreements are common. “No one wants people to think their decisions are coming from a box,” says Ric Wake, an American producer of two Grammy-winning acts who routinely employs Music Science. Even so, the names of many customers have leaked out. They include Capitol Records, Universal Music Group, Sony Music, EMI and Casablanca Records. Labels sometimes don't tell even their established artists when they use music intelligence to help decide which singles to promote.

Revenues at Polyphonic HMI will exceed $1m this year, twice last year's take. In March the company began serving India's music industry, after compiling a database of that country's pop music. Platinum Blue refuses to release figures. But one of its managers, Tracie Reed (who, like several people at Platinum Blue, used to work at Polyphonic HMI), says customers now come knocking—a reversal of the state of affairs not long ago, when “people's eyes glazed over and they asked things like, ‘Are you joking?'” The service is relatively inexpensive: a year's subscription for unlimited analyses typically costs a large record company around $100,000. And the service reduces the need for expensive “call-out” research, in which labels call consumers, play part of a song over the telephone, and compile their reactions.

It is not just record companies that are interested in music intelligence, however. The market is expanding as radio playlist-programmers adopt the technology, often to put mathematically similar songs together to create a better “flow”. Mobile operators such as Vodafone and Orange use the technology to develop mobile ringtones. Disney's Hollywood Records uses music intelligence to design soundtracks. Mr McCready of Platinum Blue says television advertising agencies have expressed interest in using it to select jingles, which, while structurally similar to those in a successful previous campaign, sound fresh to consumers.

Lawyers are also interested in using the technology. Hillel Parness, a specialist in music copyright-violation at Brown Raysman, a law firm in New York, contacted Platinum Blue to discuss the legal applications of the software. He would like to use the software in plagiarism suits as an objective way to alert judges, who often have little background in music, to suspicious similarities between two pieces of music. Music-intelligence software could also rustle up additional (and lucrative) copyright suits. Using a function known as “melody detection”, record labels will soon be able to use the software to find songs that may have plagiarised songs in the label's catalogue.

Unchained melodies

Is there not a danger, however, that giving software a say in music selection will promote uniformity and hamper creativity? The opposite is more likely. High music-intelligence scores can help convince notoriously risk-averse and “it's-who-you-know” record labels to take a chance on new talent. Take the case of Frederic Monneron, a publisher of equestrian books in Mesnil-Simon, a village of 150 people in Lower Normandy, France. After a setback in his love life, the 43-year-old self-taught guitarist and pianist set up a makeshift home studio, where he wrote and recorded 12 syrupy, and somewhat improbable, romantic-political ballads. For fun, he paid Polyphonic HMI to analyse his songs. The results indicated that the tunes had what it takes. In September a French label will begin distributing 200,000 copies of Monneron's CD, “Fred's Pentagone”, in Europe and North America. Two music videos and a tour will follow. “What happened is a fairy tale,” says Mr Monneron.

Copyright © 2006 The Economist Newspaper and The Economist Group. All rights reserved.

Economist.com
PRINT EDITION
TECHNOLOGY QUARTERLY
PRINTABLE PAGE VIEW SPONSORED BY

About sponsorship

When looks are no longer enough

Jun 8th 2006
From The Economist print edition

Gaming: As graphics improve, artificial intelligence is becoming an ever more important part of designing video games

GOOD looks, the video-games industry is discovering, will get you only so far. The graphics on a modern game may far outstrip the pixellated blobs of the 1980s, but there is more to a good game than eye candy. Photo-realistic graphics make the lack of authenticity of other aspects of gameplay more apparent. It is not enough for game characters to look better—their behaviour must also be more sophisticated, say researchers working at the interface between gaming and artificial intelligence (AI).

Today's games may look better, but the gameplay is “basically the same” as it was a few years ago, says Michael Mateas, the founder of the Experimental Game Lab at the Georgia Institute of Technology. AI, he suggests, offers an “untapped frontier” of new possibilities. “We are topping out on the graphics, so what's going to be the next thing that improves gameplay?” asks John Laird, director of the AI lab at the University of Michigan. Improved AI is a big part of the answer, he says. Those in the industry agree. The high-definition graphics possible on next-generation games consoles, such as Microsoft's Xbox 360, are raising expectations across the board, says Neil Young of Electronic Arts, the world's biggest games publisher. “You have to have high-resolution models, which requires high-resolution animation,” he says, “so now I expect high-resolution behaviour.”

Representatives from industry and academia will converge in Marina del Rey, California, later this month for the second annual Artificial Intelligence and Interactive Digital Entertainment (AIIDE) conference. The aim, says Dr Laird, who will chair the event, is to increase the traffic of people and ideas between the two spheres. “Games have been very important to AI through the years,” he notes. Alan Turing, one of the pioneers of computing in the 1940s, wrote a simple chess-playing program before there were any computers to run it on; he also proposed the Turing test, a question-and-answer game that is a yardstick for machine intelligence. Even so, AI research and video games existed in separate worlds until recently. The AI techniques used in games were very simplistic from an academic perspective, says Dr Mateas, while AI researchers were, in turn, clueless about modern games. But, he says, “both sides are learning, and are now much closer.”

Consider, for example, the software that controls an enemy in a first-person shooter (FPS)—a game in which the player views the world along the barrel of a gun. The behaviour of enemies used to be pre-scripted: wait until the player is nearby, pop up from behind a box, fire weapon, and then roll and hide behind another box, for example. But some games now use far more advanced “planning systems” imported from academia. “Instead of scripts and hand-coded behaviour, the AI monsters in an FPS can reason from first principles,” says Dr Mateas. They can, for example, work out whether the player can see them or not, seek out cover when injured, and so on. “Rather than just moving between predefined spots, the characters in a war game can dynamically shift, depending on what's happening,” says Fiona Perry of Electronic Arts.

If the industry is borrowing ideas from academia, the opposite is also true. Commercial games such as “Unreal Tournament”, which can be easily modified or scripted, are being adopted as research tools in universities, says Dr Laird. Such tools provide flexible environments for experiments, and also mean that students end up with transferable skills.

But the greatest potential lies in combining research with game development, argues Dr Mateas. “Only by wrestling with real content are the technical problems revealed, and only by wrestling with technology does it give you insight into what new kinds of content are possible,” he says.

Hence “Façade”, a game created by Dr Mateas with Andrew Stern, a researcher at the Institute for Creative Technologies at the University of Southern California. “It's an example of where I hope to see computer games go in five years,” says Dr Laird. The game is set in the apartment of Grace and Trip, a couple whose marriage is in trouble; by conversing with them in plain English, the player can influence them and help to determine whether they stay together. “Façade” is not so much a game as an interactive drama. “We wanted to build a game built around richly expressive characters,” says Dr Mateas. “We were interested in taking games into content areas that they haven't really explored before—we would like to create a new genre.”

Tellingly, Doug Church of Electronic Arts, who gave the keynote speech at last year's AIIDE conference, recently started work on a game with Steven Spielberg where “the focus is on building an emotive relationship at a story level and a gameplay level between the player and another character,” says Mr Young. Researchers and games developers are, it seems, converging on the same territory. “Industry people are being exposed to more complex techniques, and academics are learning that game AI is a unique, new and interesting problem,” says Dr Mateas. “Games are an amazing place to do fundamental AI research.”

Copyright © 2006 The Economist Newspaper and The Economist Group. All rights reserved.

Economist.com
PRINT EDITION
TECHNOLOGY QUARTERLY
PRINTABLE PAGE VIEW SPONSORED BY

About sponsorship

Brainpower under the bonnet

Jun 8th 2006
From The Economist print edition

Transport: Carmakers are putting artificial neural networks into engines to increase fuel-efficiency and reduce pollution

THE V12 engine found in the Aston Martin DB9 is notable not just for its brawn—it produces 450 horsepower—but also for its brain. It detects cylinder misfires using an artificial neural network, a system modelled on the interconnected neurons of a simple brain. This year Ford, which owns the Aston Martin brand, introduced the same technology into a second vehicle, the Econoline van, and plans to include it in all Aston Martin cars in future. Other carmakers are following suit: DaimlerChrysler is interested in using neural networks to handle the complexities of variable valve timing in order to make next-generation engines more fuel-efficient. General Motors has been working with Axeon, a British firm that makes neural-network chips, to improve engine performance. And Audi is also rumoured to be working with Axeon.

The neural networks in question are either dedicated silicon chips (such as those made by Axeon) with neurons modelled in hardware, or software models of neurons implemented on standard microprocessor chips. Both approaches allow carmakers to do things that would be far more complicated and expensive using conventional hardware and software. Neural networks, like brains, are particularly good at analysing data and recognising patterns that are difficult to define precisely. They are trained using thousands of examples, and a “learning” algorithm that alters the strength of the connections in the network so that it gives the appropriate output value (whether or not a misfire has occurred) depending on the input values (engine speed, acceleration, cylinder position, and so forth). Fortunately, engine control and monitoring applications require fewer than 100 neurons, not the tens of billions in a human brain.

“A neural network is a machine in which you shovel in what you know and train it to tell you what you want,” says Lee Feldkamp, Ford's senior technical specialist on neural networks. Over the past 17 years he and his team have demonstrated how to use neural networks to control engine idle speed, detect misfires and minimise fuel consumption. Ford finally took the technology out of the laboratory when it became clear that it was the cheapest and most reliable way to meet new pollution laws. These specify that cars' onboard diagnostics must not only monitor misfires, but must also detect whether the misfires occurred in a single cylinder or more than one.

A misfire is usually sensed by a small dip in acceleration, but with large engines such as the Econoline's V10 or the DB9's V12, it is difficult to discriminate between a fire and a misfire amid the noise of vibration. At the DB9's top speed of 7,500 revolutions per minute there are just 1.33 milliseconds to determine the answer. “We realised that the noise had a reproducible pattern and, although complicated, it's the sort of thing that a neural network can learn. So the neural network digs into this very noisy collection of data and pulls out the pieces that have the real information,” says Mr Feldkamp. The neural network runs as a piece of software on a low-cost microprocessor.

Neural misfire detection is just for large engines, and is unlikely to feature in a typical family car. But neural networks could find wider application as a means of controlling variable valve timing (VVT). As its name suggests, this involves changing the timing regime that governs the opening and closing of the valves responsible for the flow of air, fuel and exhaust in and out of the cylinders. Adjusting the timing makes it possible to optimise the torque, fuel consumption and emissions at different speeds.

But this depends on being able to solve a nasty mathematical problem that relates the spark-timing, the ratio of fuel to air, and the timing of the opening and closing of the valves. When DaimlerChrysler investigated the VVT control problem in conjunction with researchers at the University of Michigan, neural networks turned out to be the best solution. “Neural networks proved to be the technology that worked the best, the quickest, covered the entire operating regime, and was most cost effective,” says Denise Kramer, a product-development engineer at DaimlerChrysler's technical centre at Auburn Hills, Michigan. The company has now verified that the technology is feasible for large-scale production by showing that the neural-network control algorithm can run on a car's central computer, and can be calibrated to run across all its engines. With better fuel-efficiency and fewer emissions, a smarter car is a greener car.

Copyright © 2006 The Economist Newspaper and The Economist Group. All rights reserved.

Economist.com
PRINT EDITION
TECHNOLOGY QUARTERLY
PRINTABLE PAGE VIEW SPONSORED BY

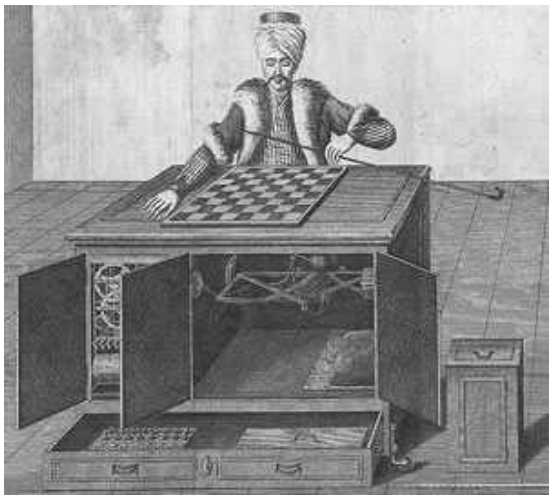
About sponsorship

Artificial artificial intelligence

Jun 8th 2006
From The Economist print edition

Software: For many tasks, humans outperform computers. So why not farm out computing tasks to people, not machines?

IF YOU are a tourist interested in seeing a baseball game while in New York, you can find out which of its teams are in town simply by sending a message to AskForCents.com. In a few minutes, the answer comes back, apparently supplied by a machine, but actually composed by a human. Using humans to process information in a machine-like way is not new: it was pioneered by the Mechanical Turk, a famed 18th-century chess-playing machine that was operated by a hidden chessmaster. But while computers have since surpassed the human brain at chess, many tasks still baffle even the most powerful electronic brain.



Now playing at Amazon.com

For instance, computers can find you a baseball schedule, but they cannot tell you directly if the Yankees are in town. Nor can they tell you whether sitting in the bleachers is a good idea on a first date. AskForCents can, because its answers come from people. “Whatever question you can come up with, there's a person that can provide the answer—you don't have the inflexibility of an algorithm-driven system,” says Jesse Heitler, who developed AskForCents. Mr Heitler was able to do this thanks to a new software tool developed by Amazon, the online retailer, that allows computing tasks to be farmed out to people over the internet. Aptly enough, Amazon's system is called Mechanical Turk.

Amazon's Turk is part toolkit for software developers, and part online bazaar: anyone with internet access can register as a Turk user and start performing the Human Intelligence Tasks (HITs) listed on the Turk website (mturk.com). Companies can become “requesters” by setting up a separate account, tied to a bank account that will pay out fees, and then posting their HITs. Most HITs pay between one cent and $5. So far, people from more than 100 countries have performed HITs, though only those with American bank accounts can receive money for their work; others are paid in Amazon gift certificates.

Mr Heitler says he had previously tried to build a similar tool, but concluded that the infrastructure would be difficult to operate profitably. Amazon already has an extensive software infrastructure designed for linking buyers with sellers, however, and the Turk simply extends that existing model. Last November Amazon unveiled a prototype of the system, which it calls “artificial artificial intelligence”. The premise is that humans are vastly superior to computers at tasks such as pattern recognition, says Peter Cohen, director of the project at Amazon, so why not let software take advantage of human strengths?

Mr Cohen credits Amazon's boss, Jeff Bezos, with the concept for the Turk. Other people have had similar ideas. Eric Bonabeau of Icosystem, an American firm that builds software tools modelled on natural systems, has built what he calls the “Hunch Engine” to combine human intelligence with computer analysis. The French postal service, for example, has used it to help its workers choose the best delivery routes, and pharmaceutical researchers are using it to determine molecular structures by combining their gut instincts with known results stored in a database.

And a firm called Seriosity hopes to tap the collective brainpower of the legions of obsessive players of multiplayer online games such as “World of Warcraft”, by getting them to perform small real-world tasks (such as sorting photographs) while playing, and paying them in the game's own currency.

Alpheus Bingham, head of InnoCentive, an online matchmaking service for scientists and challenging problems, is impressed by both Icosystem and Seriosity because, he says, “there's quite a bit of substance in this—there are some things in areas of pattern recognition that humans are just wired for, and they get it instantly.” The challenge is finding the people, and then connecting them up using existing computer networks.

Though the Turk officially remains a prototype, scores of companies have used it. Amazon itself uses the Turk for tasks such as labelling pictures on its A9 search engine, or brand preferences. AskForCents exists because of the Turk, as does CastingWords, a service that transcribes spoken audio files using people who have computer access and some time to kill—housewives, night-shift security guards and so on. “It's a labour-intensive business—we could not do this without the Turk,” says Nathan McFarland, the founder of CastingWords.

He says his firm has transcribed thousands of podcasts in just a few months, and he has left his previous job to concentrate on his new business. Mr McFarland notes that some people try to game the Turk, by using software scripts to download a translation assignment, pass it through an online translation service such as AltaVista's Babel Fish, and then offer it up as finished work. That's an easy one to catch, he says, but for other types of services such spoofs—where people try to use “real” artificial intelligence in place of the more accurate, artificial kind—might be less obvious.

How much should humans expect to be paid for renting out their brains in this way? Business users of the Turk say they are unsure what they should pay for the simple answers they want, but they typically offer just a few cents. Even online, however, no one likes to pick up a penny. Mr Heitler says requests at that low rate generally go unanswered, though two cents a query seems to spark interest.

But even complicated tasks rate only a few dollars. iConclude, a software start-up aiming to automate corporate technical support, is using the Turk to evaluate developers who can help write its repair tools. It used the Turk to source a list of recommended fixes for common problems in IIS, Microsoft's widely used web-server software. One respondent submitted a superbly thought-out 20-step process made up in Visio, a software tool for making schematics. For this, iConclude paid $5. “If we'd hired a consultant, we would have paid $1,000-2,000,” says Helen Tang of iConclude. “I was flabbergasted.”

It all sounds promising. But the market may have cooled to the Turk, at least for the moment. While Amazon says it has executed “tens of millions” of HITs, there were only 13 active HITs on a recent day, and some requests go unanswered. Although it sounds impressive, it may be that like its 18th-century namesake, there is less to the modern-day Mechanical Turk than meets the eye.

Copyright © 2006 The Economist Newspaper and The Economist Group. All rights reserved.

Economist.com
PRINT EDITION
TECHNOLOGY QUARTERLY
PRINTABLE PAGE VIEW SPONSORED BY

About sponsorship

Making waves

Jun 8th 2006
From The Economist print edition

Energy: Converting the motion of the sea into electricity requires a trade-off between efficiency and resilience—or does it?

THE prospects for wave power have risen and fallen, appropriately enough, for years. But now the technology finally seems to be making headway. Not only is the world's first commercial wave farm due to be switched on and connected to the electricity grid in Portugal this summer—but an even newer type of wave-power generator could drastically reduce the cost of extracting energy from the sea.

On the crest of a wave?

Wave power first attracted interest in the 1970s, when Stephen Salter of the University of Edinburgh devised a device that converted the motion of waves into electricity. The potential is vast: a report published earlier this year by the Carbon Trust, an organisation set up by the British government to help meet its targets for reducing greenhouse-gas emissions, concluded that 20% of Britain's electricity could be provided by wave and tidal power. This is four times more than previous estimates, and means that marine energy alone could enable Britain to reach its emissions-reduction targets. In America, meanwhile, the Department of Energy's National Renewable Energy Laboratory has estimated that the use of wave power on the east coast could provide 10-25 times more electricity than the total wind potential of the Great Plains.

Given this potential, why is it that so far, not a single commercial wave-power generator is in operation? “The biggest problem with wave-power generators is that they are relatively expensive,” says Keith Melton of the New and Renewable Energy Centre in Blyth, England. Most produce electricity at a cost of between 10-20 pence (18-36 cents) per kilowatt hour (kWh), whereas electricity produced from natural gas costs around 4p/kWh. One reason for the expense of wave power is the need to make the equipment impervious to storm damage and corrosion. Of the countless wave-power concepts invented over the years, most have been heavily over-engineered to reduce the chances of breakdown at sea. This reduces their efficiency, increasing the cost per kWh and preventing wave power from making progress.

But now things seem to be changing. Near Póvoa de Varzim, off the northern coast of Portugal, three 150-metre-long articulated snake-like pontoons, called Pelamis Wave Energy Converters, are in the final stages of being hooked up to the country's national grid, says Andrew Scott of Ocean Power Delivery, the firm behind them. Each one has three power-converter modules distributed along its length, which transform the flexing motion at the snake's joints into electricity as the snakes are buffeted by the waves. The three snakes are the first stage of a planned 24-megawatt wave-power farm, which will be capable of providing 15,000 households with power. The Pelamis's design avoids the trade-off between resilience and efficiency by switching to a higher-efficiency mode in calm seas.

But the new device, called the Snapper, increases efficiency still further. Electrical generators tend to work most efficiently when a small force is applied at high speed—which is just the opposite of what wave power provides, says Ed Spooner, a consultant engineer based near Durham, in England, who invented the Snapper. His invention

works much like a typical linear generator, in which a magnet is moved up and down inside coils of wire, inducing electrical currents in the process. But there is a crucial difference: alongside the coils are a second set of magnets of alternating polarity. These prevent the central magnet from moving up and down smoothly. Instead, magnetic forces repeatedly halt its motion, so that it moves up and down in a jerky fashion. The resulting series of short, rapid movements is more suitable for generating electricity than a slow, smooth movement. Early tests suggest that it could be as much as ten times more efficient than existing wave generators. Having spent years floundering in the water, could wave power finally be ready to make a splash?

Copyright © 2006 The Economist Newspaper and The Economist Group. All rights reserved.

The cult of the wireless rabbit

Jun 8th 2006
From The Economist print edition

Nabaztag, a Wi-Fi-enabled rabbit able to talk, sing, light up in different colours and wiggle its ears, is the latest entry in the new field of “smart objects”. The idea is that chic household items present information unobtrusively and in ways that can be taken in at a glance. Nabaztag can, among other things, wiggle its ears to indicate the arrival of an e-mail from a particular address, light up according to the weather forecast or stockmarket activity, and read out news headlines or messages. Made by Violet, a smart-objects firm in Paris, Nabaztag was first launched last year in France, Switzerland and Belgium, but is now available worldwide.

Copyright © 2006 The Economist Newspaper and The Economist Group. All rights reserved.

Economist.com
PRINT EDITION
TECHNOLOGY QUARTERLY
PRINTABLE PAGE VIEW SPONSORED BY

About sponsorship

Invisible mending

Jun 8th 2006
From The Economist print edition

Medicine: Inserting surgical tools via a patient's mouth is technically challenging, but means unsightly scars can be avoided

IF THE current popularity of cosmetic surgery is anything to go by, people are keener than ever to reshape body parts and remove blemishes—and plastic surgeons are only too happy to oblige. But now the desire for bodily perfection has extended into the realm of non-cosmetic surgery, too. A new way of performing abdominal surgery makes it possible to carry out operations within the body without leaving any visible scars. In such transgastric or "natural orifice" surgery, abdominal procedures that would normally involve cuts in the skin are instead carried out via the patient's mouth.

The surgeon inserts flexible laparoscopic tools through the mouth and into the patient's stomach, and then cuts a hole to get into the abdominal cavity from within. From here, the surgeon can perform anything from liver biopsies to prostate or gall-bladder removals. He draws the removed tissue back out through the mouth, and carefully stitches up the incision in the stomach tissue.

It may sound complicated or even gruesome, but this approach could transform the field of surgery, says Paul Swain, an expert in the field at Imperial College London. In India, where two surgeons have been pioneering the new technique, dozens of patients have already undergone such procedures in order to avoid being left with even the smallest of scars. "We think this is going to replace open surgery," says Dmitry Oleynikov, a surgeon at the University of Nebraska Medical Centre in Omaha. But there are still many hurdles to overcome, he says.

In particular, manipulating the laparoscopic (or "keyhole surgery") tools in such confined conditions is very tricky, says Dr Oleynikov. So, working with Shane Farritor at the University of Nebraska, Lincoln, he has developed tiny, remote-controlled robots that can be inserted into the abdominal cavity through the stomach and can then move around under radio control to assist the surgeon. Each of Dr Oleynikov's robots, 15mm in diameter and 85mm long, acts as a roving camera. Shaped like a cylinder, it consists of two rod-like aluminium "wheels" at opposite ends of a thick axle in which a camera and biopsy needle are mounted. After extensive testing of different designs, Dr Oleynikov's team found that a corkscrew tread pattern on the wheels proved most effective for moving the robot around without causing damage to surrounding tissue.

These robots are small enough to pass down the throat and into the abdominal cavity through a standard laparoscopic incision. The surgeon controls the robots using a joystick and monitor, and carries out the operation using laparoscopic instruments. Dr Oleynikov has already used the robots in place of endoscopes in standard laparoscopic procedures, inserting as many as three through the same incision to give the surgeon several views of the operation. And in some transgastric experiments on pigs, he has used the robots to view the gall-bladder and take liver biopsies.

Biopsies can of course be taken through the skin, but there is a huge advantage to taking tissue samples from inside, since you can see the organ and choose which part of the tissue to sample, says Dr Swain. And the mobility of the robots provides views of things that would otherwise be very difficult to see, such as the far side of the liver, he adds.

In the past, Dr Swain has helped to develop wireless camera capsules, which are now commonly used for gastrointestinal diagnostics. (He was the first human volunteer to swallow one, in 1999.) Such tools are vital for the progress of transgastric surgery, he says, but take time to develop. And even when they are available, the field still has to prove its worth. At the moment it is probably still riskier than traditional laparoscopy, says Dr Swain, whose team is the only one to have carried out a transgastric gall-bladder removal, albeit in a pig. Indeed, some surgeons have raised concerns about the possible risks associated with exposing the abdomen to stomach bacteria.

Dr Oleynikov is confident that such fears will prove unjustified. "Studies show that with proper bowel preparation and antibiotics, this risk is very, very low," he says. Transgastric surgery could, in fact, prove to be superior to conventional surgery in several respects, he suggests, even though "the advantage at this point is aesthetics." Gastric incisions heal more quickly than those of the abdominal wall; anecdotal evidence suggests that transgastric surgery is less painful; and because it requires sedation rather than a general anaesthetic, it can be carried out on a greater range of patients with fewer side effects. Ultimately, says Dr Swain, no matter how bizarre this type of surgery might seem to us now, patients will always opt for an approach that leaves no scar and hurts less.

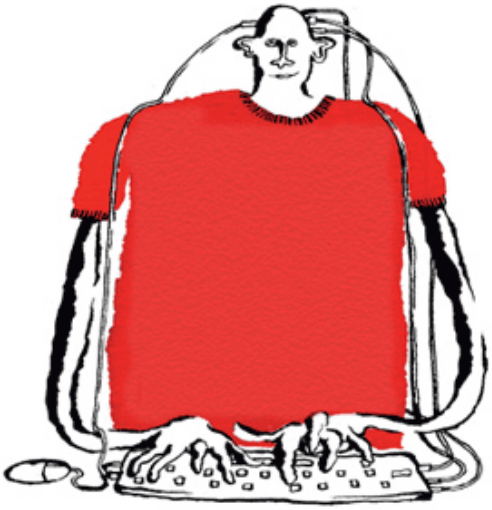
Copyright © 2006 The Economist Newspaper and The Economist Group. All rights reserved.

Economist.com
PRINT EDITION
TECHNOLOGY QUARTERLY
PRINTABLE PAGE VIEW SPONSORED BY

About sponsorship

Reprogram your life

Jun 8th 2006
From The Economist print edition



Technology and society: “Life hacking” applies a programmer's mentality to streamlining daily routines and getting things done

“THE most important contribution of management in the 20th century was the 50-fold increase in the productivity of the manual worker in manufacturing,” wrote the management guru Peter Drucker. “The most important contribution management needs to make in the 21st century is similarly to increase the productivity of the knowledge worker.”

But how? While manual workers toiling on assembly lines can be reorganised in a top-down way to improve efficiency, information workers are more self-directed, and must find efficient routines to process a constant flow of information on their own. The problem is akin to rewriting a piece of software to make it run more reliably. And just as programmers like to exploit tricks or “hacks” to get results quickly, a new “life hacking” movement is now applying the same approach to reorganising life off the screen too.

Danny O'Brien, an internet activist and writer, introduced the term in a presentation at the O'Reilly Emerging Technology Conference in 2004. He sent long questionnaires to dozens of “over-prolific alpha geeks” asking them how they managed to accomplish so much and avoid technological distractions. Mr O'Brien's hypothesis was that these geeks had hit upon a set of strategies for working efficiently in a self-managed, infinitely diverting world. “I saw the people around me employing all these tricks,” he recalls. “But they kept their tricks to themselves. Some life hackers get self-conscious about talking about it too much.”

Mr O'Brien's presentation resonated with many technologists, including Merlin Mann, who started a weblog in September 2004 called *43 Folders* that synthesised life hacking's high-tech perspective with that of “Getting Things Done”, a bestselling productivity book by David Allen. “Getting Things Done” advocates breaking down all projects into single steps that can be accomplished in a few minutes and keeping track of these steps on categorised lists—productivity software for the mind, in short. Although this kind of regimented approach is of particular appeal to geeks, it could have wider application among information workers in general. “Geeks are the canaries in the coal mine,” says Mr Mann. “We were the first to be overwhelmed by e-mail.” The tools used by geeks today often end up being more widely adopted tomorrow.

Life hacking does not rely on the use of technology for the sake of it, however. Indeed, perhaps Mr Mann's greatest claim to fame is the ironically named “Hipster PDA”—a stack of index cards held together by a bulldog clip that is, he contends, superior to an electronic personal organiser. Mr Mann's presentation of the idea resembles a comedy routine, but his point is a serious one: there is not much fiddling, configuration and customisation to be done with a stack of index cards, so users must instead get on with doing something useful. *43 Folders*—and similar sites, such as lifehacker.com—abound with similar suggestions of ways to streamline everyday processes and avoid being sidetracked (see list below).

There is still room for improvement in the field, however, if the experience of its principal proponents is any guide. Mr Mann and Mr O'Brien signed a contract to produce a book on life hacking for O'Reilly and Associates, a publisher of technical manuals and the firm behind successful books including “Google Hacks” and “Amazon Hacks”. But people who obsess about procrastination are unlikely to deliver a book on time, and the pair's book on life hacking was cancelled. “We tried every trick we knew to motivate ourselves,” says Mr Mann. It hardly inspires confidence in their philosophy. But life hacking, Mr O'Brien gamely insists, is about more than productivity.

“Life hacks aren't tied to business ideas of efficiency,” he says. “People spend all this time making themselves efficient and they start to wonder what efficiency is for. They refill their lives with things that aren't boring workaday activities—meditation, yoga, ways to calm down.” Mindfulness is another common aspiration of life hackers, whose hyperactivity is a double-edged sword, providing a boon in a multi-tasking work-environment, but leaving its most skilled practitioners feeling empty and frayed, tugged in all directions at once.

“Productivity books can be friendly, but at root they're didactic—how to answer more e-mail to make more sales,” says Mr Mann. “They don't talk about how screwed up we are today, trying to keep up with 21st-century life using 60-year-old tools.” Ultimately, he says, the aim of life hacking is not so much to improve productivity as to inspire confidence and avoid feeling overwhelmed.

It seems ironic that geeks, the keenest adopters of technology, must resort to technical tricks to strike a balance between playing with their toys and getting useful work done. But the life-hacking tips they have compiled can help less gadget-obsessed people to become more productive, too. If you use a computer all day, 43folders.com and lifehacker.com are well worth a visit. Just don't let reading about life-hacking techniques get in the way of doing some useful work.

Some life-hacking tips

• **Slow down your e-mail**
Set your e-mail program to fetch new messages every 15 minutes or every hour, rather than every minute, so you are interrupted less often.

• **Create form responses**
Any time you find yourself typing substantially similar e-mails, create a form version and save it for future use.

• **Go full-screen**
Switch your computer to full-screen mode, filling the whole screen with your current application, minimising the visual distraction of other programs.

• **Park on a downhill slope**
When wrapping up work on a task, make a note of what needs to be done next. This makes it easier to get started when you resume work on the task.

• **Use a “dash” to beat procrastination**
Putting something off? Devote five minutes, measured with a kitchen timer, to working on it. It will make the task seem more approachable.

• **Declare a “vertical day”**
Switch off e-mail, mobile phones, everything, and devote yourself to a single, important project for an entire day.

Copyright © 2006 The Economist Newspaper and The Economist Group. All rights reserved.

Economist.com
PRINT EDITION
TECHNOLOGY QUARTERLY
PRINTABLE PAGE VIEW SPONSORED BY

About sponsorship

Bluetooth's quiet success

Jun 8th 2006
From The Economist print edition

Consumer electronics: What does the success of Bluetooth wireless technology reveal about standards battles?

IT WAS born amid a blaze of hype at the height of the dotcom boom, but initially failed to thrive. Indeed, Bluetooth, a short-range wireless technology used to interconnect portable devices, has been declared dead on many occasions. Early versions of the technology suffered from compatibility problems; an ambitious demonstration of the technology at a trade show in 2001 failed to work. And while Bluetooth struggled despite all the hype from its backers, another wireless technology, Wi-Fi, took off on its own. Obituaries of Bluetooth have appeared many times in the technology press, usually attributing its demise to the success of Wi-Fi. “Bluetooth is in full retreat,” declared Sean Maloney, an Intel executive, in 2001. “Bluetooth is dead,” said Craig Mathias, an analyst at the Farpoint Group, in 2003. Other analysts issued similar verdicts.

But reports of the death of Bluetooth proved to be premature: today it is in rude health. Sales of Bluetooth devices more than doubled in 2005 to reach 320m units, and the figure is expected to exceed 520m this year—equivalent to more than 10m units a week and far outstripping sales of Wi-Fi chips, for those who insist on the comparison. Around one in four mobile phones sold now support Bluetooth.

And after years of insisting that Bluetooth was more than just a way to link a wireless headset to a mobile phone, its backers seem to have been vindicated, as other uses for Bluetooth have at last begun to emerge. Last year 60% of Bluetooth chips went into mobile handsets and 15% into wireless headsets, says Scott Smyser of iSuppli, a market-research firm, but the other 25% went into other devices, from laptop computers, keyboards and mice to Bluetooth-enabled clothing.

This success, after its rocky start, is due to a combination of factors, says Stuart Carlaw, an analyst at ABI Research. In many countries Bluetooth's fortunes were boosted by new legislation banning the use of mobile phones without a hands-free kit while driving. This prompted many people to buy Bluetooth headsets. Several carmakers, led by Audi, also began to incorporate microphones and speakers, capable of connecting to a handset via Bluetooth, into their vehicles.

As consumers became more aware of Bluetooth and began to ask for it, handset-makers started to include it as a means of differentiating their products and increasing their margins. Adding a Bluetooth chip to a phone now costs very little—around $2, says Mr Carlaw, down from $20 in 2001—but allows the manufacturer to increase the price of the handset by far more, and opens up a new market for high-margin accessories. Finally, operators began offering Bluetooth headsets (typically end-of-line products that cost very little) as incentives to new customers. Again, the perceived value of the headset is far higher than its cost to the operator, so this increases margins.

Greater adoption has, in turn, cleared the way for the inclusion of Bluetooth in all kinds of new products. In addition to Bluetooth-enabled jackets, motorcycle helmets and sunglasses with built-in wireless headsets, the controllers for two next-generation video-games consoles due to be launched later this year, Sony's PlayStation 3 and Nintendo's Wii, will use Bluetooth. Because Bluetooth is an industry standard, both console-makers can buy chips and software off the shelf, which is quicker and cheaper than developing their own proprietary technologies, says Mr Carlaw.

Other new applications include stereo wireless headphones for use with MP3 players—Apple is rumoured to be working on a Bluetooth iPod—and connecting MP3 players to in-car stereo systems via Bluetooth. “Bluecasting”, the beaming of information to handsets from Bluetooth-enabled posters, once a science-fiction scenario, has also become feasible, now that a large proportion of consumers have Bluetooth-capable phones.

In March the Bluetooth Special Interest Group, the not-for-profit body that promotes and directs the development of the technology,announced that version 3.0 of Bluetooth would be based on ultrawideband radio technology, which allows for data-transfer rates hundreds of times faster than is possible today. “This will open up completely

new application areas from 2008," says Alan Woolhouse of Cambridge Silicon Radio, a British company that is the leading manufacturer of Bluetooth chips. Higher data rates will, for example, make it possible to transfer music to MP3 players, or beam photographs or video from digital cameras to televisions, without using wires.

Horses for courses

All of which provides a valuable lesson about the nature of standards wars. Too often such fights are portrayed as "winner-take-all" contests in which only one victor can emerge. This makes for more exciting headlines, but very few standards battles (the fight over high-definition video-disc formats springs to mind) are actually like this. Supposedly rival technologies often end up coexisting and serving different needs, as happened with Wi-Fi and Bluetooth. "I don't think they were ever really on the same battlefield," declares Mr Carlaw. "We see them as complementary—they do different things," says Mr Woolhouse. "It's horses for courses."

Although declarations of the death of Bluetooth have now subsided, there is no shortage of predictions that other technologies are doomed. Wi-Fi and WiMax, some people believe, fatally undermine the case for third-generation (3G) mobile networks; ever-more-elaborate smartphones are, it is frequently predicted, turning into "iPod killers" or "BlackBerry killers"; and the proponents of software-as-a-service, delivered via the web as a subscription service, say it will wipe out traditional software. But the lesson of Bluetooth's quiet success is that such predictions should be taken with a grain of salt. In each case, coexistence is more likely than an outright victory for any single approach. Remember that next time someone declares one new technology to be dead at the hands of another.

Copyright © 2006 The Economist Newspaper and The Economist Group. All rights reserved.

Economist.com
PRINT EDITION
TECHNOLOGY QUARTERLY
PRINTABLE PAGE VIEW SPONSORED BY

About sponsorship

Trust me, I'm a robot

Jun 8th 2006
From The Economist print edition

Ronald Grant Archive

Robot safety: As robots move into homes and offices, ensuring that they do not injure people will be vital. But how?

IN 1981 Kenji Urada, a 37-year-old Japanese factory worker, climbed over a safety fence at a Kawasaki plant to carry out some maintenance work on a robot. In his haste, he failed to switch the robot off properly. Unable to sense him, the robot's powerful hydraulic arm kept on working and accidentally pushed the engineer into a grinding machine. His death made Urada the first recorded victim to die at the hands of a robot.

This gruesome industrial accident would not have happened in a world in which robot behaviour was governed by the Three Laws of Robotics drawn up by Isaac Asimov, a science-fiction writer. The laws appeared in "I, Robot", a book of short stories published in 1950 that inspired a recent Hollywood film. But decades later the laws, designed to prevent robots from harming people either through action or inaction (see table), remain in the realm of fiction.

Indeed, despite the introduction of improved safety mechanisms, robots have claimed many more victims since 1981. Over the years people have been crushed, hit on the head, welded and even had molten aluminium poured over them by robots. Last year there were 77 robot-related accidents in Britain alone, according to the Health and Safety Executive.

Asimov's Three Laws of Robotics

1. A robot may not injure a human being, or, through inaction, allow a human being to come to harm.
2. A robot must obey the orders given to it by human beings, except where such orders would conflict with the First Law.
3. A robot must protect its own existence, as long as such protection does not conflict with the First or Second Law.

With robots now poised to emerge from their industrial cages and to move into homes and workplaces, roboticists are concerned about the safety implications beyond the factory floor. To address these concerns, leading robot experts have come together to try to find ways to prevent robots from harming people. Inspired by the Pugwash Conferences—an international group of scientists, academics and activists founded in 1957 to campaign for the non-proliferation of nuclear weapons—the new group of robo-ethicists met earlier this year in Genoa, Italy, and announced their initial findings in March at the European Robotics Symposium in Palermo, Sicily.

"Security, safety and sex are the big concerns," says Henrik Christensen, chairman of the European Robotics Network at the Swedish Royal Institute of Technology in Stockholm, and one of the organisers of the new robo-ethics group. Should robots that are strong enough or heavy enough to crush people be allowed into homes? Is "system malfunction" a justifiable defence for a robotic fighter plane that contravenes the Geneva Convention and mistakenly fires on innocent civilians? And should robotic sex dolls resembling children be legally allowed?

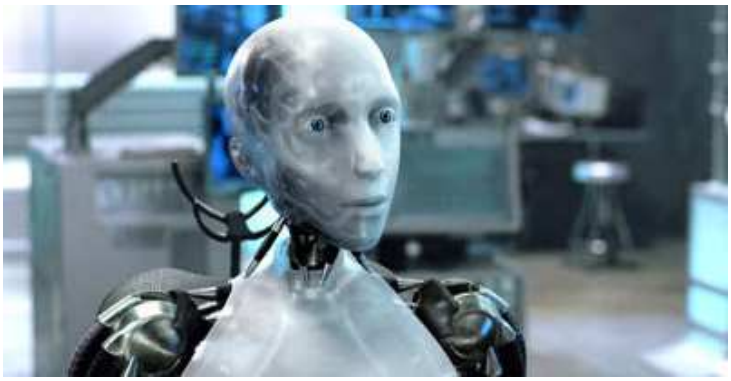
These questions may seem esoteric but in the next few years they will become increasingly relevant, says Dr Christensen. According to the United Nations Economic Commission for Europe's World Robotics Survey, in 2002

the number of domestic and service robots more than tripled, nearly outstripping their industrial counterparts. By the end of 2003 there were more than 600,000 robot vacuum cleaners and lawn mowers—a figure predicted to rise to more than 4m by the end of next year. Japanese industrial firms are racing to build humanoid robots to act as domestic helpers for the elderly, and South Korea has set a goal that 100% of households should have domestic robots by 2020. In light of all this, it is crucial that we start to think about safety and ethical guidelines now, says Dr Christensen.

Stop right there

So what exactly is being done to protect us from these mechanical menaces? “Not enough,” says Blay Whitby, an artificial-intelligence expert at the University of Sussex in England. This is hardly surprising given that the field of “safety-critical computing” is barely a decade old, he says. But things are changing, and researchers are increasingly taking an interest in trying to make robots safer. One approach, which sounds simple enough, is try to program them to avoid contact with people altogether. But this is much harder than it sounds. Getting a robot to navigate across a cluttered room is difficult enough without having to take into account what its various limbs or appendages might bump into along the way.

20TH CENTURY FOX



Regulating the behaviour of robots is going to become more difficult in the future, since they will increasingly have self-learning mechanisms built into them, says Gianmarco Veruggio, a roboticist at the Institute of Intelligent Systems for Automation in Genoa, Italy. As a result, their behaviour will become impossible to predict fully, he says, since they will not be behaving in predefined ways but will learn new behaviour as they go.

Then there is the question of unpredictable failures. What happens if a robot's motors stop working, or it suffers a system failure just as it is performing heart surgery or handing you a cup of hot coffee? You can, of course, build in redundancy by adding backup systems, says Hirochika Inoue, a veteran roboticist at the University of Tokyo who is now an adviser to the Japan Society for the Promotion of Science. But this guarantees nothing, he says. “One hundred per cent safety is impossible through technology,” says Dr Inoue. This is because ultimately no matter how thorough you are, you cannot anticipate the unpredictable nature of human behaviour, he says. Or to put it another way, no matter how sophisticated your robot is at avoiding people, people might not always manage to avoid it, and could end up tripping over it and falling down the stairs.

Legal problems

So where does this leave Asimov's Three Laws of Robotics? They were a narrative device, and were never actually meant to work in the real world, says Dr Whitby. Quite apart from the fact that the laws require the robot to have some form of human-like intelligence, which robots still lack, the laws themselves don't actually work very well. Indeed, Asimov repeatedly knocked them down in his robot stories, showing time and again how these seemingly watertight rules could produce unintended consequences.

In any case, says Dr Inoue, the laws really just encapsulate commonsense principles that are already applied to the design of most modern appliances, both domestic and industrial. Every toaster, lawn mower and mobile phone is designed to minimise the risk of causing injury—yet people still manage to electrocute themselves, lose fingers or fall out of windows in an effort to get a better signal. At the very least, robots must meet the rigorous safety standards that cover existing products. The question is whether new, robot-specific rules are needed—and, if so, what they should say.

“Making sure robots are safe will be critical,” says Colin Angle of iRobot, which has sold over 2m “Roomba” household-vacuuming robots. But he argues that his firm's robots are, in fact, much safer than some popular toys. “A radio-controlled car controlled by a six-year old is far more dangerous than a Roomba,” he says. If you tread on a Roomba,

it will not cause you to slip over; instead, a rubber pad on its base grips the floor and prevents it from moving. “Existing regulations will address much of the challenge,” says Mr Angle. “I'm not yet convinced that robots are sufficiently different that they deserve special treatment.”

“The question is whether new, robot-specific safety rules and regulations are needed—and, if so, what they should say.”

Robot safety is likely to surface in the civil courts as a matter of product liability. “When the first robot carpet-sweeper sucks up a baby, who will be to blame?” asks John Hallam, a professor at the University of Southern Denmark in Odense. If a robot is autonomous and capable of learning, can its designer be held responsible for all its actions? Today the answer to these questions is generally “yes”. But as robots grow in complexity it will become a lot less clear cut, he says.

“Right now, no insurance company is prepared to insure robots,” says Dr Inoue. But that will have to change, he says. Last month, Japan's ministry of trade and industry announced a set of safety guidelines for home and office robots. They will be required to have sensors to help them avoid collisions with humans; to be made from soft and light materials to minimise harm if a collision does occur; and to have an emergency shut-off button. This was largely prompted by a big robot exhibition held last summer, which made the authorities realise that there are safety implications when thousands of people are not just looking at robots, but mingling with them, says Dr Inoue.

However, the idea that general-purpose robots, capable of learning, will become widespread is wrong, suggests Mr Angle. It is more likely, he believes, that robots will be relatively dumb machines designed for particular tasks. Rather than a humanoid robot maid, “it's going to be a heterogeneous swarm of robots that will take care of the house,” he says.

Probably the area of robotics that is likely to prove most controversial is the development of robotic sex toys, says Dr Christensen. “People are going to be having sex with robots in the next five years,” he says. Initially these robots will be pretty basic, but that is unlikely to put people off, he says. “People are willing to have sex with inflatable dolls, so initially anything that moves will be an improvement.” To some this may all seem like harmless fun, but without any kind of regulation it seems only a matter of time before someone starts selling robotic sex dolls resembling children, says Dr Christensen. This is dangerous ground. Convicted paedophiles might argue that such robots could be used as a form of therapy, while others would object on the grounds that they would only serve to feed an extremely dangerous fantasy.

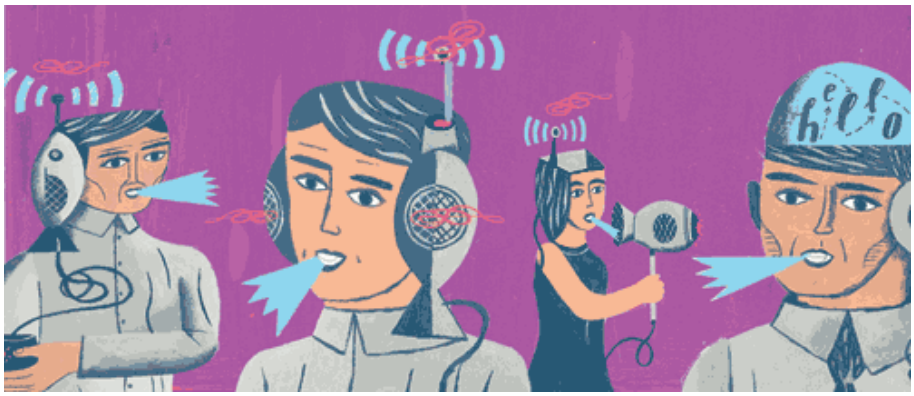
All of which raises another question. As well as posing physical danger, might robots also be dangerous to humans in less direct ways, by bringing out their worst aspects, from warfare to paedophilia? As Ron Arkin, a roboticist at the Georgia Institute of Technology in Atlanta, puts it: “If you kick a robotic dog, are you then more likely to kick a real one?” Roboticists can do their best to make robots safe—but they cannot reprogram the behaviour of their human masters.

Copyright © 2006 The Economist Newspaper and The Economist Group. All rights reserved.

Economist.com
PRINT EDITION
TECHNOLOGY QUARTERLY
PRINTABLE PAGE VIEW SPONSORED BY
About sponsorship

How to build a Babel fish

Jun 8th 2006
From The Economist print edition



Translation software: The science-fiction dream of a machine that understands any language is getting slowly closer

IT IS arguably the most useful gadget in the space-farer's toolkit. In “The Hitchhiker's Guide to the Galaxy”, Douglas Adams depicted it as a “small, yellow and leech-like” fish, called a Babel fish, that you stick in your ear. In “Star Trek”, meanwhile, it is known simply as the Universal Language Translator. But whatever you call it, there is no doubting the practical value of a device that is capable of translating any language into another.

Remarkably, however, such devices are now on the verge of becoming a reality, thanks to new “statistical machine translation” software. Unlike previous approaches to machine translation, which relied upon rules identified by linguists which then had to be tediously hand-coded into software, this new method requires absolutely no linguistic knowledge or expert understanding of a language in order to translate it. And last month researchers at Carnegie Mellon University (CMU) in Pittsburgh began work on a machine that they hope will be able to learn a new language simply by getting foreign speakers to talk into it and perhaps, eventually, by watching television.

Within the next few years there will be an explosion in translation technologies, says Alex Waibel, director of the International Centre for Advanced Communication Technology, which is based jointly at the University of Karlsruhe in Germany and at CMU. He predicts there will be real-time automatic dubbing, which will let people watch foreign films or television programmes in their native languages, and search engines that will enable users to trawl through multilingual archives of documents, videos and audio files. And, eventually, there may even be electronic devices that work like Babel fish, whispering translations in your ear as someone speaks to you in a foreign tongue.

This may sound fanciful, but already a system has been developed that can translate speeches or lectures from one language into another, in real time and regardless of the subject matter. The system required no programming of grammatical rules or syntax. Instead it was given a vast number of speeches, and their accurate translations (performed by humans) into a second language, for statistical analysis. One of the reasons it works so well is that these speeches came from the United Nations and the European Parliament, where a broad range of topics are discussed. “The linguistic knowledge is automatically extracted from these huge data resources,” says Dr Waibel.

Statistical translation encompasses a range of techniques, but what they all have in common is the use of statistical analysis, rather than rigid rules, to convert text from one language into another. Most systems start with a large bilingual corpus of text. By analysing the frequency with which clusters of words appear in close proximity in the two languages, it is possible to work out which words correspond to each other in the two languages. This approach offers much greater flexibility than rule-based systems, since it translates languages based on how they are actually used, rather than relying on rigid grammatical rules which may not always be observed, and often have exceptions.

“Most of the time, the languages that translation researchers deal with in their laboratories are so unfamiliar that they may as well be alien.”

Examples abound of the ridiculous results produced by rule-based systems, which are unable to cope in the face of similes, ambiguities or bad grammar. In one example, a sentence written in Arabic meaning “The White House confirmed the existence of a new bin Laden tape” was translated using a standard rule-based translator and became “Alpine white new presence tape registered for coffee confirms Laden.” So it is hardly surprising that researchers in the field have migrated towards statistical

translation in the past few years, says Dr Waibel.

Now you're speaking my language

The statistical approach, which starts off without any linguistic knowledge of a language, might seem a strange way of doing things, but it is actually remarkably similar to the way humans attempt to translate languages, says Shou-de Lin, a machine-translation expert who was until recently a researcher at the University of Southern California's Information Sciences Institute (ISI). “It looks at the script and bunches symbols together,” he explains, much as a human mind might try to solve the problem. But in order for this approach to work, the voracious translation systems must be fed with huge numbers of training texts. This prompted Franz Och, Google's machine-translation expert, to boast recently that the search-engine giant would probably have a key role in the future of machine translation, since it has such a huge repository of text.

Translation systems are of limited use if they cannot be used by people on the move, such as tourists looking for a restaurant or soldiers talking to local people in a war zone. So what is on the cards to replace the good old-fashioned phrasebook? In the past couple of years the Defence Advanced Research Projects Agency (DARPA), an American military research body, has been testing a number of projects that cram a combination of speech-recognition, machine-translation and voice-synthesis software into a handheld device. One of these projects, developed at CMU and called Babylon, can now perform two-way translations between spoken English and Iraqi Arabic.

From Babylon to Babel fish

This is a huge improvement on the earlier one-way text-based translators used by American soldiers, says Alan Black, one of the researchers involved in the development of Babylon. For one thing, Iraqis can respond in their native language, rather than communicating through nods and shakes of the head, he says. Better still, Babylon is capable of translating completely novel sentences, rather than being limited to only a couple of hundred set phrases, as with the earlier systems.

It is still far from perfect, says Dr Black. But that is hardly surprising given the limited processing power of a hand-held computer. By comparison, the hardware used to run the lecture translator looks almost like a supercomputer, he says. The trade-off is that these hand-held systems tend to be “domain specific”—that is, they work well as long as the conversation is limited to a particular topic.

The next phase of the project, says Dr Black, will be to allow portable translation devices to be trained in the field. The idea is that when a traveller encounters people speaking a new language that is unknown by the translation device, it can be trained by exposing the software to lots of chatter. In theory, once a language model has been acquired, you could just leave the device in training mode in front of the television, although it would probably be preferable to find some bilingual people and ask them to repeat set phrases containing a lot of linguistic information, says Dr Black.

Learning a new language from scratch, as humans can, is far more difficult than statistical translation using parallel texts. But since the number of high-quality parallel texts is limited, particularly for more obscure languages, a lot of effort is now being put into the development of statistical translation systems that can manage without them. Instead, the aim is to use statistical techniques to divine the language's inherent structure, and then to work out what particular words mean. If this could be done, of course, it would open the way to a universal translator.

How far can machine translators be taken? “There is no reason why they should not become as good, if not better, than humans,” says Dr Waibel. Indeed, Dr Lin and his colleague Kevin Knight at ISI have been applying statistical

translation techniques to try to make sense of ancient hieroglyphics and scriptures that have baffled scholars for centuries. One example is a 15th-century work known as the Voynich manuscript, which is written in an unknown and mysterious language. Its length, of around 20,000 words, and the regular patterns in its syntax, mean it is unlikely to be a hoax, says Dr Knight. One theory is that it was written in a known language but using a novel alphabet. Some people have suggested that it is actually written in a form of ancient Ukrainian in which vowels are omitted.

Dr Knight has used a statistical-translation program to debunk this theory by showing that the order and frequencies of symbols do not match those in Ukrainian. This was not particularly surprising, says Dr Knight, because most scholars now reject the Ukrainian theory. But it was a small victory for him, because it let him test his translation software on the closest thing he could get to an alien language. “We wanted to translate documents that had never been seen before,” he says.

Provided there is some common frame reference in the subject matter, there is no reason why translating an alien language should not eventually be possible, says Dr Waibel. Most of the time, the languages that machine-translation researchers deal with in their laboratories are so unfamiliar that they may as well be alien, he says. “As a joke, one of the students built a Klingon translator,” he says, referring to the fictional alien language in “Star Trek”.

But perhaps the best way to practice translating an alien language would be to try to communicate with dolphins, says Dr Black. By using statistical translation programs to analyse the chirps, clicks and whistles of wild dolphins off the coast of the Bahamas, he and his colleagues believe it may be possible to make sense of what the dolphins are saying. The challenge here lies in both capturing good samples and also identifying “words”. Only then can the structure and frequency be analysed, he says.

So far, Dr Black and his team have managed to identify only signature whistles, the calls that dolphins use to identify themselves. But Douglas Adams's suggestion that fish-like creatures might provide the key to understanding alien languages might turn out to be true after all.

Copyright © 2006 The Economist Newspaper and The Economist Group. All rights reserved.

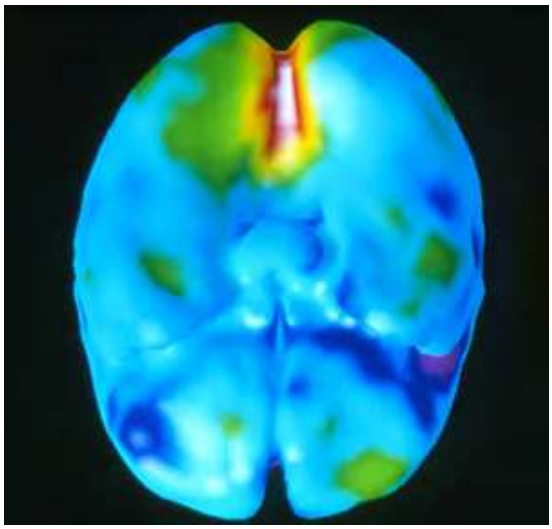
Economist.com
PRINT EDITION
TECHNOLOGY QUARTERLY
PRINTABLE PAGE VIEW SPONSORED BY

About sponsorship

The power of positrons

Jun 8th 2006
From The Economist print edition

Science Photo Library



Medical imaging: Positron-emission tomography is more expensive and complex than other body-scanning technologies. But, as this case history explains, it has proven its worth after years of struggle

ONE of the first patients to enroll in 2002 for an early clinical trial for Sutent, a drug that is now approved to treat a rare type of gastrointestinal cancer, stands out in the memory of Annick Van den Abbeele, director of nuclear medicine at the Dana-Farber Cancer Institute in Boston. The patient, then aged 53, had developed at least 20 different tumours. After more than six weeks on Sutent, a computed tomography (CT) scan—a type of X-ray—revealed no changes in the size of the tumours. But a positron-emission tomography (PET) scan revealed that a complete shutdown in tumour metabolism had occurred after just one week on the new drug. “By including functional imaging with PET,” says Dr Van den Abbeele, “we were absolutely astonished to realise how quickly we could determine that a drug was hitting the target.”

That is because unlike CT scans or magnetic-resonance imaging (MRI), which display the anatomy of the body, PET makes metabolic activity visible, using short-lived radioactive substances, called radiotracers, introduced into the body. In the late 1990s America's Food and Drug Administration (FDA) determined that the most commonly used PET radiotracer was safe and effective. Since then, PET has become an invaluable tool in oncology, often leading to more accurate cancer diagnoses, the detection of recurrent diseases and a better assessment of how patients respond to treatment, says Peter Conti, president of America's Society of Nuclear Medicine and the director of the PET Imaging Science Centre at the University of Southern California. “It's revolutionised how we manage patients with cancer,” he says.

Besides being a boon for cancer care, PET has found uses in brain-imaging and is now being used to help diagnose Parkinson's disease; to identify regions in the brain that cause epileptic seizures in patients considering surgery; and to help distinguish early Alzheimer's from other types of dementia. As a result, the use of PET scanning is growing fast. Around 2.7m scans will take place worldwide this year, up from 2m scans in 2005. Although PET accounts for only a small fraction of all medical imaging, its use is expected to grow by 30% a year over the next few years. (By comparison, 45m CT scans were performed in America last year.)

Against the odds

While the future of PET looks bright, its past has been filled with trouble. Since the technology first went on the market in 1976, its adoption has faced financial, technological and regulatory hurdles. As a result, it has taken PET two decades to move from experimental use to clinical practice. “If I ever wrote a book about PET, I would call it ‘Against All Odds’,” says Michael Phelps, who chairs the department of Molecular and Medical Pharmacology at the University of California at Los Angeles (UCLA) and who played a big role in the development and commercialisation of the technology.

Traditional nuclear medicine uses atoms, not naturally found in the body, as radioactive tags. These atoms build up in certain tissues, and the radiation they emit, in the form of gamma rays, is detected to form an image. But such atoms are bulky and have to be introduced into the body, so they can interfere in the very processes they are trying to measure.

Some radioactive atoms, however—such as oxygen-15, nitrogen-13 and carbon-11—are much smaller, and their non-radioactive forms are the building blocks of biological molecules found throughout the body. Replacing a stable atom in a molecule with its radioactive counterpart produces a molecule that is chemically identical to the natural product, but with a radioactive tag on it. That means it can be followed wherever it goes in the body.

Science Photo Library

When an oxygen-15, nitrogen-13 or carbon-11 atom undergoes radioactive decay, it emits a positron—a positively charged particle that is the antimatter counterpart of the electron. The positron does not get far before it collides with an electron, and the two particles annihilate each other. Their mass is converted into energy in the form of two photons that travel in opposite directions from the site of the collision. Using detectors to look out for the near-simultaneous arrival of pairs of photons, it is possible to work out where the positrons are being emitted and form an image of the tissues where the radioactive atoms have accumulated.

One of the first medical studies that attempted to take advantage of the unique physics of positron emitters was reported in the early 1950s by Gordon Brownell and William Sweet of the Massachusetts General Hospital in Boston. By using two opposing detectors, the near-simultaneous arrival of pairs of photons could be recorded and counted. As the detectors moved in a raster-like fashion up and down on opposite sides of the head, increased count rates revealed the site of a brain tumour in which the radioactive atoms had accumulated.

Two obstacles, however, hampered the use of biologically important positron emitters for some time. The first was that the radioactive elements in question decay very quickly. This is a good thing from the patient's point of view, since it minimises the dose of radiation, but it means that the radiotracers must be manufactured very close to the imaging system. And that highlights the second obstacle: such positron emitters must be made in a expensive cyclotron (a type of particle accelerator).

Despite these drawbacks, in 1966 the late Michel Ter-Pogossian, then head of Washington University's division of radiological sciences in St Louis, and Henry Wagner, professor of radiology and medicine at Johns Hopkins University, published an influential paper that advocated the use of positron emitters as tracers, on the grounds that they seemed uniquely suited for investigating the biochemical processes of the body.

Their efforts coincided with an important scientific breakthrough: the development of computed tomography, in which mathematical algorithms are used to construct images from mountains of data. In late 1972 Dr Ter-Pogossian and Dr Phelps, who was then a young assistant professor at Washington University and worked in Dr Ter-Pogossian's lab, went to a meeting of the Radiological Society of North America in Chicago where an early CT scanner was on display. Both came back convinced of the importance of the approach, and subsequently applied it to PET. Using a computer to analyse thousands of pairs of detected photons, it was possible to construct a more detailed image of the distribution of the radiotracer within the patient. Despite competition from other laboratories, Dr Ter-Pogossian's group succeeded in constructing a series of prototypes that led to the first commercial PET scanner.

“As anatomical images reach a limit in what they can reveal, PET's ability to look at underlying biological processes is just starting to be tapped.”

Because there was little grant money available for his group's research pursuits, Dr Phelps decided in 1973 to contact EG&G ORTEC, a scientific-instrument company in Oak Ridge, Tennessee, to see if he could get a favourable deal on supplies. He reached Terry Douglass, then the chief engineer of ORTEC's life-sciences division, who invited him to visit. Dr Phelps made the nearly eight-hour drive in his red Volkswagen Beetle, along with his colleagues Nizar Mullani and Edward Hoffman. Dr Douglass was impressed, and agreed to loan the group some equipment to develop what the researchers had dubbed PETT—an acronym for “positron-emission transaxial tomograph”. (“Transaxial” was later dropped.)

An early prototype, designed to image objects and animals, consisted of a table with a hole at its centre and detectors positioned around it. PETT III, however, already resembled today's scanners in form and function. Completed in late 1974, it featured a gliding bed for patients and a hexagonal array of detectors, which could collect data from multiple angles at the same time. Because Dr Douglass and ORTEC had supported PET early on, Dr Phelps and Dr Hoffman decided to collaborate with the company to develop a commercial version of the

scanner, the first example of which was delivered in 1976 to UCLA, where Dr Phelps and Dr Hoffman had moved.

EG&G ORTEC sold only a few scanners a year to research institutions, but Dr Douglass believed that PET was poised for success. So when the company put up its life-sciences division for sale in 1983, he and a few of his colleagues pooled their savings and borrowed $2.5m to buy its PET business. Dr Phelps served as an adviser to the new company, dubbed Computer Technology and Imaging (CTI). CTI's mission statement was simple: to make clinical PET a reality.

Do you take sugar?

But clinical PET would probably not have succeeded without the development of a new radiotracer, a sugar molecule tagged with the radioactive isotope fluorine-18. Fluorodeoxyglucose, or FDG for short, turned out to be exceptionally useful for a variety of reasons. For one thing, fluorine-18 decays far more slowly than other biologically useful positron emitters. Its half-life—the time taken for half the radioactive atoms in a sample to decay—is 109 minutes, compared with two minutes for oxygen-15, ten minutes for nitrogen-13 and 20 minutes for carbon-11.

Moreover, because many cells in the body are dependent on glucose to function, FDG can in effect create a low-resolution anatomical map of the human body. But most importantly, not all tissues consume sugar at equal rates. Cancer cells, for example, exhibit an exceptional hunger for glucose, which means tumours show up as hot spots of FDG concentration.

Many in the field did not immediately recognise the value of FDG. According to Joanna Fowler, a senior chemist at Brookhaven National Laboratory on Long Island, New York, who was part of the original team that synthesised the radiotracer in 1976, it was several years before a scientific journal finally accepted the group's paper for publication. The inventors did not patent the compound.

In 1985 CTI took a big step to make PET more useful: it bought Cyclotron Corporation, a bankrupt cyclotron-maker. CTI set out to optimise the machines for hospitals, which meant making them smaller and easier to operate. The company also collaborated with other researchers to develop processes to automate the synthesis of radiotracers. By 1986 CTI was offering a package deal: a scanner with a cyclotron for $2m.

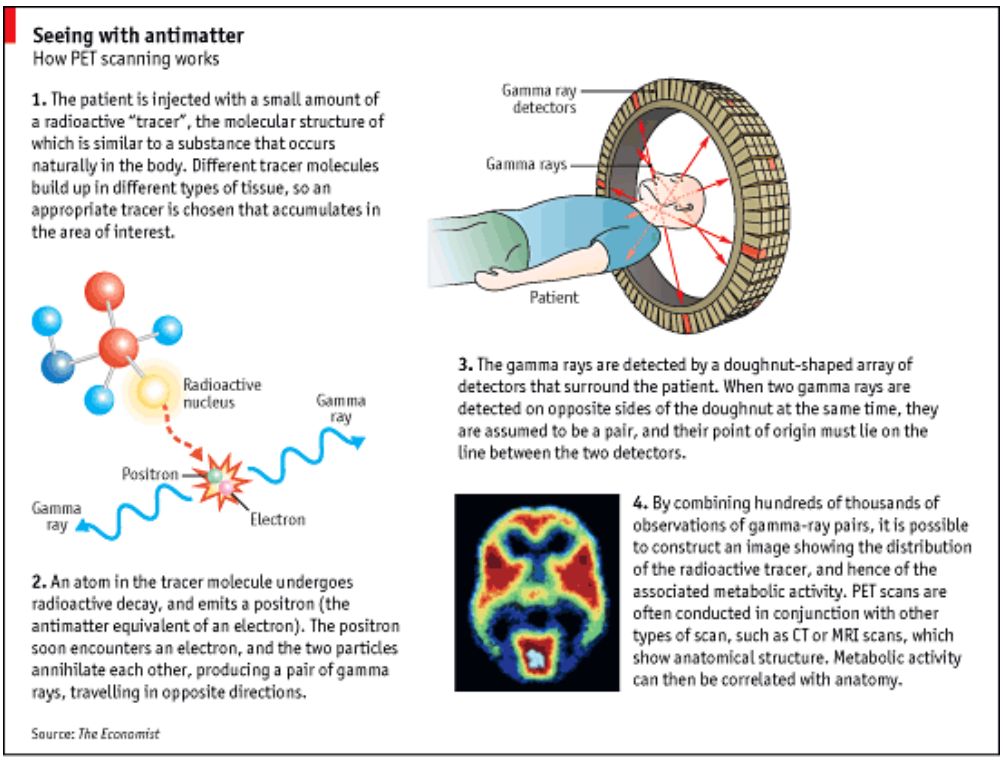
To expand the sales of its rather expensive machines, CTI looked for a marketing partner with worldwide reach, which it found in Siemens. The company made a $2.5m investment in CTI in 1985, and a few years later bought a 49.9% stake in the business for $30m. (In 2005 Siemens finally bought the remaining shares of CTI for about $1 billion.) Also around 1990 General Electric bought Scanditronix, a Swedish company which was CTI's main competitor.

In 1991 a cover of the *Journal of Nuclear Medicine* proclaimed “Clinical PET: its time has come”. Studies were demonstrating the value of PET for brain and cardiac imaging, and increasingly for cancer imaging too. But while PET had overcome a lot of technological barriers by this time, regulatory hurdles remained. Because virtually no PET radiotracers had yet been approved by the FDA, Medicare (America's government-sponsored health-care programme for people aged 65 or older) refused to pay for the scans.

Securing FDA approval proved to be difficult. Doctors pointed out that the amount of PET radiotracer administered was so low, it didn't cause any pharmacological effect. But because the material was introduced into the patient, the FDA required a clinical-trial process nearly as stringent as that for a therapeutic drug. “It was kind of ridiculous,” recalls Dr Conti. Because FDG was not patented, “no company was willing to develop it, yet there were hundreds of articles showing how clinically useful it was.” To educate regulators and the public about PET, those in the industry had formed a not-for-profit trade organisation, the Institute for Clinical PET, in 1990. For a long time, however, the group's lobbying efforts got nowhere. Things began to improve when Dr Phelps explained the benefits of PET to his friend Ted Stevens, a Republican Senator from Alaska. In 1997 Mr Stevens sponsored a provision as part of the FDA Modernisation Act that directed the agency to put new procedures in place to approve PET radiotracers and allow for their legal production in the meantime. A few weeks later Medicare agreed to start reimbursements for PET.

Around the same time, CTI set up “PETNET”, a web of pharmacies around the country that could supply hospitals with FDG, eliminating the need for each hospital to make its own positron emitters in its own cyclotron. By the time Medicare began reimbursements, ten sites were already in operation. After that, the number of PET procedures and the sale of scanners began to take off.

Meanwhile, another PET milestone was in the making. In 1994 David Townsend, then an assistant professor of radiology at the University of Pittsburgh, together with Ronald Nutt, a co-founder of CTI, applied for a grant from America's National Institutes of Health to develop a device that would combine PET and CT scanning. “We started thinking, if we add CT to PET”, explains Dr Townsend, “we might have something interesting, since it will give both anatomy and function.”


Seeing with antimatter
How PET scanning works
1. The patient is injected with a small amount of a radioactive "tracer", the molecular structure of which is similar to a substance that occurs naturally in the body. Different tracer molecules build up in different types of tissue, so an appropriate tracer is chosen that accumulates in the area of interest.
Radioactive nucleus
Gamma ray
Positron
Gamma ray
Electron
2. An atom in the tracer molecule undergoes radioactive decay, and emits a positron (the antimatter equivalent of an electron). The positron soon encounters an electron, and the two particles annihilate each other, producing a pair of gamma rays, travelling in opposite directions.
Gamma ray detectors
Gamma rays
Patient
3. The gamma rays are detected by a doughnut-shaped array of detectors that surround the patient. When two gamma rays are detected on opposite sides of the doughnut at the same time, they are assumed to be a pair, and their point of origin must lie on the line between the two detectors.
4. By combining hundreds of thousands of observations of gamma-ray pairs, it is possible to construct an image showing the distribution of the radioactive tracer, and hence of the associated metabolic activity. PET scans are often conducted in conjunction with other types of scan, such as CT or MRI scans, which show anatomical structure. Metabolic activity can then be correlated with anatomy.
Source: The Economist

As it turned out, the device revolutionised the field. In 1998 a prototype was installed at the University of Pittsburgh, and three years later the first PET/CT scanners hit the market. Today nearly all PET scanners sold are combination devices. The machines make it easier to interpret images, says Dr Townsend, and also help to reduce scanning time.

With the emergence of new drugs aimed at particular molecular targets, PET has taken on a new role. Many of the new targeted drugs, such as Gleevec or Sutent, were designed to stunt the growth of cancer cells—but changes in tumour size occur slowly, if at all. Only a PET scan could quickly show whether tumour cells were dying off and the drug was having the desired effect. "If we had relied on the conventional way of assessing drug response, with CT or MRI, we might not have considered that those drugs were working," says Dr Van den Abbeele.

Scanning the future

The FDA is taking note as well. The agency recently began working with America's National Cancer Institute and others on a new initiative that will investigate whether PET scans can be used in clinical trials to assess whether a patient's tumour is responding to treatment, even if it may not be shrinking. If the studies are successful, says George Mills, director of the FDA's medical-imaging division, PET could be used to shorten clinical-trial times and cut expenses.

Even now, much of PET's potential remains untapped. Depending on the radiotracer that is being used, PET can measure many different processes. That is why drug giants such as Pfizer and Merck are using PET in their drug-discovery and development programmes. "It gives us metrics for early no-go decisions," says Richard Hargreaves, Merck's vice-president of imaging.

It has taken PET a long time to carve out a niche beside CT and MRI. But as anatomical images reach a limit in what they can reveal, PET's ability to look at underlying biological processes is only just beginning to be exploited.

Copyright © 2006 The Economist Newspaper and The Economist Group. All rights reserved.

Economist.com
PRINT EDITION
TECHNOLOGY QUARTERLY
PRINTABLE PAGE VIEW SPONSORED BY

About sponsorship

The march of technology

Jun 8th 2006
From The Economist print edition

Military equipment: Researchers are devising new ways to turn soldiers into cyborg-like, high-tech fighting machines

STEALTH bombers, giant aircraft carriers and nuclear submarines are the modern symbols of military might, but they are of limited use in today's "asymmetric" conflicts. The old certainties of the cold war have given way to messy urban-guerrilla operations in Iraq, Somalia and Liberia, search-and-destroy missions in Afghanistan and the Sudan, and peacekeeping operations in many parts of the world. This has shifted the emphasis away from expensive weapons systems and back towards individual soldiers. As a result, programmes to develop new "solder-centric" technologies have been launched in America, Britain, Germany, Italy and other countries.

"Right now, we aren't losing any submarines or aircraft carriers," says Edwin Thomas, the head of the Department of Materials Science and Engineering at the Massachusetts Institute of Technology's Institute for Soldier Nanotechnologies. "So spending money on protecting soldiers is really the right thing to be doing."

Modern soldiers are hardly short of technological gizmos. Over the years they have been weighed down with all kinds of gadgets, in addition to their usual weapons, equipment and provisions. A survey of American soldiers—the first conducted in 40 years—found that an infantryman typically carries around 120 pounds, or 55kg, on his back. "If I were to put 120 pounds of kit on you with a weapons system, and then tell you, 'Okay, now I am going to shoot at you, and you're going to shoot these targets,' you would understand how truly difficult it is not only to accomplish your mission, but to just stay alive," says Jean-Louis "Dutch" DeGay of the American army's Future Force Warrior (FFW) programme, a $250m effort to devise military technologies for deployment starting in 2010.

Individually, each radio, satellite-positioning unit or night-vision system works well; the problem is that these separate devices do not work smoothly together. So the aim of the FFW programme, and of similar efforts such as Britain's Future Infantry Soldier Technology project, Germany's Projekthaus System Soldat and Italy's Soldato Futuro initiative is to integrate all of these technologies to create a seamless partnership with the soldier. The result, if it works, will be to transform each soldier into a kind of part-human, part-machine cyborg—"an F-16 on legs", as Mr DeGay puts it. The best way to think of the soldier of the future, he says, is "as an integrated, mobile weapons system, like a Bradley fighting vehicle or an Abrams tank."

This means rethinking every aspect of a soldier's equipment. "We have stripped the soldier down to the skin," says Mr DeGay. In future, that skin will be clothed in a uniform made up of three layers. Closest to the skin will be a layer of clothing, embedded with sensors that can detect whether the wearer is injured, dehydrated, exhausted or even asleep. In the event of injury, vital signs can be measured to assess the soldier's medical condition, and this information, plus the soldier's exact location, can be transmitted to a medical team, so that it knows what to expect and can act quickly when it arrives.

The second layer consists of "electro-textiles" that provide power and data connections to these sensors, and to the various other devices being carried by the soldier. Radio antennae can also be incorporated into this layer. Finally, the third and topmost layer consists of a new kind of armour. Existing armour stops bullets, says Mr DeGay, but it is heavy, and its snug fit means that the impact of a bullet can still cause broken bones or internal injuries. The new armour, which will be battle-tested this summer, is based upon flexible Kevlar plates positioned a few centimetres above the skin. This means the plates are better able to absorb and distribute the impact of an incoming round—and also makes the uniform cooler to wear.

Although this new uniform integrates the various devices carried by an individual soldier, the next step is to connect the soldiers themselves, so that they can exchange information and function smoothly as a unit. That, says Mr DeGay, requires turning every soldier into a living, breathing, fighting internet node, linked to every other soldier and vehicle at all times. "We affectionately call this the Borg effect—everyone is part of the collective," he says, referring to the race of cyborgs from "Star Trek".

A centrepiece of this effort is a helmet with a Borg-like eyepiece. It displays an image that appears to hover in space in the wearer's field of vision, like a 19-inch television at arm's length. This will make it possible to deliver battlefield information to soldiers from other sources, in effect extending their senses. If a squad is moving through the desert, for example, a drone aircraft might fly ahead of the soldiers and send back pictures of enemy troops lying in wait. Similarly, the display can act as a digital map and compass, can show the positions of other soldiers nearby, and might even show real-time video from elsewhere on the battlefield—all of which adds up to “expanded situational awareness”, as it is known. “We always talk about firepower being the true power, but knowledge is the true power,” says Mr DeGay.

“Individually, each radio or night-vision system works well. But these separate devices do not work smoothly together.”

And these technologies are just the start. The Future Warrior Concept, a part of the FFW programme that is intended to imagine the military technologies of 2025, envisages a helmet, similar to a motorcycle helmet, with a 180-degree display, armour with built-in heating and cooling systems, and an array of sensors to extend the soldier's senses still further. All of this is wrapped up in a futuristic black uniform.

While the FFW programme is the flagship of America's efforts to revamp tomorrow's soldier, it is not the only such programme. The Defence Advanced Research Projects Agency, an American military research organisation, is funding the development of exoskeletons, for example, that use external hydraulics and pneumatic systems to endow soldiers with superhuman strength—though such systems are still far too bulky and power-hungry for battlefield use. Another approach, being pursued at the Massachusetts Institute of Technology, is to use nanotechnology. Dr Thomas's five-year, $50m project is developing smart fabrics for use in “battlesuits”—second skins that can make soldiers stronger and less vulnerable. One smart fabric generates energy from sunlight; another contracts like an artificial muscle when a voltage is applied.

Other advanced technologies are under development at SRI International, an independent research institute based in Menlo Park, California. These include a system to locate snipers, which relies on sound sensors wired into the clothing of troops in the vicinity. These pick up the sound of the sniper's weapon being fired, and acoustic analysis then determines the sniper's position, says Scott Seaton of SRI's Engineering and Systems Division. Also under development is a system that uses SRI's PenRad penetrating-radar technology to allow soldiers to see inside a building before entering it.

Technological overkill?

But will soldiers be able to handle all this technology and the torrent of data it will provide—or will it add to the chaos of war? The aim of “human-systems engineering”, says Mr DeGay, is not to bury troops in data, but to act as amplifiers for the mind, body and senses. “We're trying to avoid paralysis by analysis,” says Mr Seaton. “When the shooting starts, you don't want to be looking at your computer. You need to being paying attention to what is going on around you.”

Yet when it comes to making soldiers more machine-like, says Colonel Kip Nygren, head of the Department of Civil and Mechanical Engineering at the Military Academy at West Point, there ought to be more discussion about where to draw the line. “We have become our technology,” he says. “It's something we need to talk about—we are moving really rapidly ahead technologically, but politically we need to have these discussions.”

If the technology really does work as advertised, however, might it eventually do away with the need for human soldiers altogether—and allow them to be replaced by robots? The first steps have already been taken: drone aircraft have already been used to fire missiles. But for the foreseeable future, people will still do the killing on the ground. “Humans have got to be in the loop,” says Dr Thomas. “It is probably going to be necessary for the next 20 years, maybe 100.” The technology of warfare may be more elaborate than ever, but the soldier of the future will still be a man, not a machine.

Copyright © 2006 The Economist Newspaper and The Economist Group. All rights reserved.

Economist.com
PRINT EDITION
TECHNOLOGY QUARTERLY
PRINTABLE PAGE VIEW SPONSORED BY

About sponsorship

Plugging into the future

Jun 8th 2006
From The Economist print edition

Electric cars: A grassroots movement is building hybrid petrol-electric cars that can be recharged from the mains. Why?

WITH a licence plate that reads “I00 MPG”, Greg Hanssen is used to his car attracting attention. Even so, he seemed especially pleased by the crowd that gathered around his modified Toyota Prius at a hotel parking lot in San Diego, during a recent conference held there by the Society of Automotive Engineers. They poked at various parts of the car with vigour, and positively gushed when he opened the back to reveal what any punter would have described as an ordinary-looking electrical plug.

Such enthusiasm is surprising, since automotive engineers are a hard bunch to impress. The technologies involved in cars have been refined countless times since the first internal-combustion engine appeared over a century ago. It would take a pretty big breakthrough to take their breath away today. And yet that is what happened in San Diego, at a conference devoted to hybrid cars.

Hybrid technology, pioneered by Toyota with its Prius, combines the usual petrol engine with an electric motor and battery that never need to be plugged in. The resulting gain in fuel economy is impressive: the Prius achieves over 40 miles per gallon, perhaps 20% more than it would without hybridisation. But the gathered petrol-heads, almost all of them men, yawned through presentations on various aspects of hybrids until the final topic: “plug-ins”. As experts described efforts to connect hybrids to the electrical grid, those in the audience scribbled furiously and asked eager questions. And when Mr Hanssen, a plug-in pioneer, was pointed out in the audience, the room gave him an ovation. Why all the hoopla, when his big idea—plugging the car into the mains for recharging—seems to some people to be a big step backward?

Electric sceptics

For one thing, say the sceptics, plugging in will be expensive and will stress the already overloaded power grid. Actually, that is unlikely. Because drivers will mostly plug in their cars overnight, they will benefit from cheaper off-peak power rates. In America, using cheap electricity to power cars can reduce the cost per mile by 75% compared with petrol (or even more, given current high petrol prices). The savings are even greater in Europe, which has high petrol taxes. True, if many drivers plugged in during the day it would raise peak demand, but software in the cars could prevent daytime charging.

Sceptics also argue that electric cars are misleadingly clean: they are “pollute somewhere else” machines, they scoff. While running on battery power they produce no tailpipe emissions but, critics note, the coal-intensive grid

electricity they use surely produces more greenhouse gases than a petrol engine does. Again, that turns out to be wrong: studies by California's Air Resources Board confirm that generating the electricity to power cars in pure-electric mode produces only about half of the greenhouse gases of typical petrol vehicles. This assumes the power grid is half coal-fired, as America's is today. As the grid “decarbonises” over time, such emissions will fall.

Fine, but surely few people want a car you have to keep plugging in—what happens when the battery runs out? According to Bill Reinert of Toyota, one of the great advantages of the Prius electrical system—in which the battery is charged by the petrol engine and using energy recaptured during braking—is the fact that you never need to plug it in and that it never runs out of juice. That is far more convenient for drivers, insists Toyota, which has opposed the idea of plug-ins.

But Mr Hanssen notes that even if the battery pack in his modified Prius goes flat, it simply switches over to the petrol engine, just as a normal Prius does. The difference is that his car can go much further on battery power alone. That is because he has replaced the original nickel-metal hydride (NiMH) battery with a higher-capacity lithium-ion battery, and has hacked the control software to prevent the petrol engine kicking in until the car is moving at high speed. As a result, his modified Prius can travel over 30 miles in all-electric mode, compared with a mile or so for a standard Prius.

Toyota did not provide the software source code, but Mr Hanssen and his colleagues at EnergyCS, a firm outside Los Angeles, managed to trick the Prius's computer into thinking that his giant battery is really a factory-installed battery that mysteriously happens to be full of charge much of the time. Even when the petrol engine kicks in (as the master computer requires on all Prius cars at higher speeds), electric power is still blended in to improve fuel economy and provides up to 75% of the total power at 55mph.

Riding with Mr Hanssen from San Diego to Los Angeles in his hacked Prius, your correspondent saw the other reason he is a hero to the engineers. The detailed diagnostics screen on his dashboard verified that his licence plate does not lie: his car really does achieve 100mpg. Given that the average fuel economy of new American vehicles is less than 30mpg, that is quite an achievement.

EnergyCS has handled the conversion of around half a dozen Prius cars already. With the help of Clean Tech, a systems integration firm, it plans to offer plug-in retrofits to the general public this year for around $12,000. The company hopes to plug in Europeans through Amberjac, its European partner. It may find a receptive audience: Priuses in Europe already have a button allowing drivers to go into all-electric mode for brief periods. (The button is not wired up in American Priuses, though it can be activated.)

Blame it on the hydrogen

EnergyCS is at the forefront of a clean-car revolution, but it is not alone. A motley crew of hackers, entrepreneurs and idealists has sprung up to boost the nascent technology of plug-in hybrids. Most of these enthusiasts are in, or from, California—not surprising, given the state's greenery and its love of electric cars. Curiously, another common thread is a passionate hatred for hydrogen fuel cells.

As a forthcoming documentary film “Who Killed the Electric Car?” (released later this month) makes clear, this crowd does not blame the failure in the 1990s of battery cars—such as GM's EV1, the most aerodynamic production car ever made—on the limitations of battery technology or a lack of customer interest. Chelsea Sexton, a former marketer of EV1 cars and a star of the film, typifies the view of the plug-in crowd when she blames gullible regulators and cynical carmakers for abandoning electric cars for the distant dream of hydrogen. Inspired by the hacking of Priuses, various lobbying groups have sprung up hoping to entice manufacturers to produce plug-ins and to push politicians to support them. Ms Sexton, for example, now helps run Plug In America, a group that includes Jim Woolsey, a former head of the CIA.

Felix Kramer runs the California Cars Initiative (CalCars), a non-profit advocacy group that promotes plug-ins. With help from EnergyCS, his outfit created the first plug-in Prius—though it used cheap lead-acid batteries, which are much heavier and shorter-lived than lithium-ion ones. During Earth Day celebrations in April, Ron Gremban, CalCars' technology guru, led a group that converted a Prius into a plug-in in three days, while the public watched. In co-ordination with the Electric Auto Association, CalCars now plans to release a free “open source” version of its conversion instructions.

Plug-In Partners, which counts many electric utilities and green groups as members, is drumming up “pre-orders” for fleets of plug-in vehicles to prove that demand for them really exists. That is important not only because carmakers are notoriously risk-averse (given the huge sunk costs of existing capital stock). Battery enthusiasts whisper darkly that the car companies never wanted battery cars to succeed, and so lied about a lack of consumer demand. Ms Sexton and other former insiders point to long waiting lists they say were ignored by the big car companies, who chose instead to shut down their electric programmes and to crush most of those electric cars.

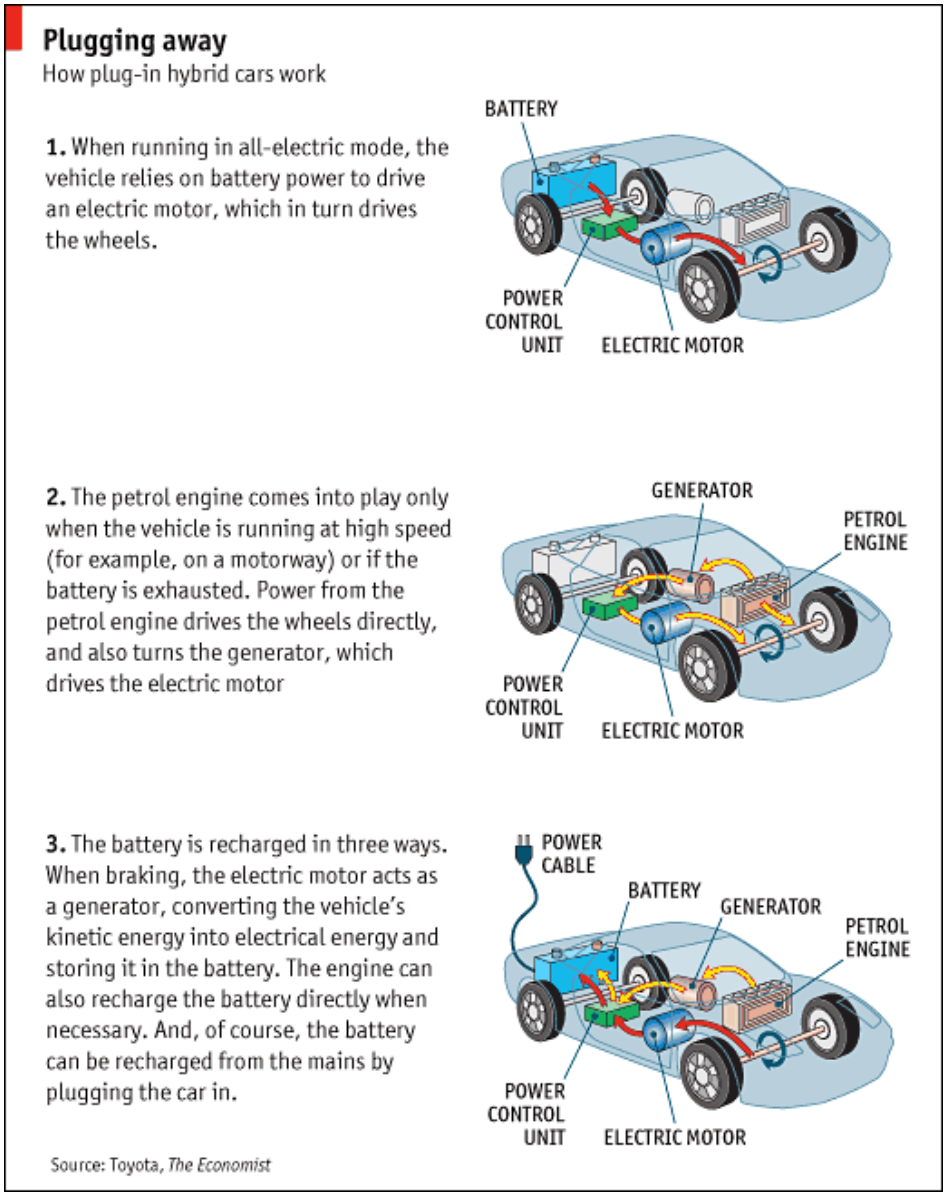
All this talk of the obstinacy and ruthlessness of Detroit comes as no surprise to Andrew Frank, an engineering professor at the University of California at Davis. The oil shocks of the 1970s inspired him, he says, to pursue

technologies to make a big car capable of 100mpg. For three decades, he has been advocating hybrid technology—and seemingly getting nowhere with the big car manufacturers.

And yet Dr Frank has persevered. Visitors to his lab today find a plug-in Ford Explorer sports-utility vehicle (SUV) equipped with a giant 16 kilowatt-hour (kWh) battery designed for long range—a conventional Prius battery has a capacity of 1.3kWh. He has replaced the original 3.5-litre internal-combustion engine with a frugal 1.9-litre version, thus boosting fuel economy, but the added kick from the electric motor means this SUV can still accelerate to 60mph faster than an ordinary Explorer. He has made similar modifications to a Mercury saloon, so it can travel 40 miles in all-electric mode and achieve an astounding 200mpg.

Dr Frank draws inspiration from “The Great Race”, a film from 1965 in which the offbeat Professor Fate takes on a conventional challenger in an automobile race. Team Fate, as Dr Frank's researchers are called, has won a number of contests with its hybrid vehicles—as the black victory banners depicting skulls and crossbones (Professor Fate's insignia) on the lab's walls attest. “In the movie the professor is really wacky,” jokes one of his students, “and that's right on the money.”

Dr Frank seems comfortable with his image as the absent-minded professor. “I've been Professor Fate a long time,” he says with a smile. Even when he got somewhere with the big car firms, he thinks he got cheated. He showed off his technology years ago to visitors from Toyota. At the time they expressed no interest, he says, but he was struck by the similarity of the Prius technology later unveiled.


Plugging away
How plug-in hybrid cars work
1. When running in all-electric mode, the vehicle relies on battery power to drive an electric motor, which in turn drives the wheels.
BATTERY
POWER CONTROL UNIT
ELECTRIC MOTOR
2. The petrol engine comes into play only when the vehicle is running at high speed (for example, on a motorway) or if the battery is exhausted. Power from the petrol engine drives the wheels directly, and also turns the generator, which drives the electric motor
GENERATOR
PETROL ENGINE
POWER CONTROL UNIT
ELECTRIC MOTOR
3. The battery is recharged in three ways. When braking, the electric motor acts as a generator, converting the vehicle's kinetic energy into electrical energy and storing it in the battery. The engine can also recharge the battery directly when necessary. And, of course, the battery can be recharged from the mains by plugging the car in.
POWER CABLE
BATTERY
GENERATOR
PETROL ENGINE
POWER CONTROL UNIT
ELECTRIC MOTOR
Source: Toyota, The Economist

Hymotion, a Canadian firm, has also converted a Prius into a plug-in. Rather than retrofitting cars on-site, this firm has developed a modular kit that is intended to be installed (in just two hours, supposedly) by authorised garages around North America. Ricardo Bazzarrella, Hymotion's president, hopes his kit will fall in price from $12,000 today to $6,500 by 2008. He plans to develop similar kits for the hybrid versions of the popular Ford Escape SUV and the

bestselling Toyota Camry saloon. “Every new hybrid that comes out, we're looking to make into a plug-in,” he says.

Entrepreneurs and academics are not the only ones plugging in. The Electric Power Research Institute (EPRI), the research arm of America's power utilities, has joined up with DaimlerChrysler for a trial in which over two dozen of its Sprinter vans will be converted into plug-ins. It expects them to be used primarily as fleet vehicles, such as delivery trucks, that return to a depot for recharging every night.

The plug-in crowd may be paranoid and conspiratorial, but it is nevertheless effective. Thanks to its efforts, the number of vehicles converted to plug-in status seems likely to soar from a handful today to hundreds within a year. And if, as plug-in advocates hope, some of the big carmakers develop official, commercial versions of these plug-in vehicles, then this niche technology could hit the big time over the next few years.

Enough juice?

Grand ambitions are fine, but there is still one snag that could yet keep plug-ins from hitting the big time: batteries. Energy storage has long been the Achilles heel of electric cars. Have batteries really become cheap, reliable and compact enough? The answer is a definite maybe. Earlier versions of electric cars (such as the ill-fated EV1) used lead-acid batteries. This old technology is cheap and safe, but cannot compete with newer technologies on weight, range and life. With the first-ever hacked Prius, CalCars found that its 135kg lead-acid battery provided barely 10 miles of all-electric range, performed poorly at lower temperatures and wore out within a year.

Hope springs eternal, however. Firefly, a firm spun off from Caterpillar, an industrial-machinery giant, has developed a radical new approach to lead-acid batteries. The firm replaces the conventional lead plates with graphite foam, which carries a slurry of chemically active materials. The foam increases the area of contact between the electrodes and the active chemicals, and greatly reduces the problem of corrosion. The firm claims that this new approach reduces weight and matches the performance of NiMH at one-fifth of the cost. It hopes to apply this technology to hybrid-car batteries.

“A motley crew of hackers, entrepreneurs and idealists has sprung up to boost the nascent technology of plug-in hybrids.”

It sounds promising, but has yet to be proven in the field. In contrast, NiMH batteries are battle-tested and safe (unlike some lithium-battery technologies, which have an unpleasant tendency to explode). Toyota's conventional Prius has a NiMH pack that weighs 35kg or so and costs around $1,600. Putting NiMH batteries into a plug-in Prius, as CalCars has done with the help of Electro Energy, a battery-maker, means carrying a lot more weight around. Such a battery costs around $5,000 and weighs 180kg—though CalCars hopes to reduce that weight by half with its next prototype. Stan Ovshinksy, who pioneered the NiMH battery, says he has now come up with a radical improvement on that technology that would be perfect for plug-in cars—if only his firm ECD Ovonics (partly controlled by Chevron, an oil giant) would let him go ahead.

Yet the future may belong to lithium technology after all. One reason, says Menahem Anderman of Advanced Automotive Batteries, a consultancy, is that recent increases in the price of nickel and cobalt have limited the opportunity for further cost reduction of NiMH and made lithium batteries, which have traditionally been far more expensive, more competitive. Alan Mumby of Johnson Controls, a big car-parts supplier, agrees. His firm has recently entered into a joint venture with Saft, a French battery giant, to produce lithium-ion batteries for hybrid cars. Mr Mumby maintains that “the lithium-ion battery both delivers and accepts power very readily, making it ideal for hybrids with regenerative braking. Lithium-ion technology is the wave of the future.” Lithium also has the crucial advantages of low size and weight. Hymotion's production-ready battery kits, due later this year, will feature lithium-ion batteries weighing just 70kg but delivering an all-electric range of 25-30 miles.

Dead end or stepping-stone?

Even if the battery woes that have long bedevilled electric cars can be solved, however, such progress may yet prove a stepping-stone to hydrogen—the *bête noire* of the electric-car crowd. “Long term, plug-ins with fuel cells may be the ideal vehicles,” says Mr Graham of the EPRI. Dr Frank agrees, noting that the hybridisation would mean cars would need less hydrogen on board, and smaller (and thus cheaper) fuel cells. Dr Ovshinsky even stood up after the New York premiere of “Who Killed the Electric Car?” to lecture the film's director and audience that batteries and hydrogen can work smoothly together.

The Prius hackers get to work

Everyone is agreed on the need for better batteries, however. And A123 Systems, a spin-off from the Massachusetts Institute of Technology, is now promoting a new lithium battery technology which combines a novel lithium-ion phosphate chemistry with nanoscale materials that increase the surface area of the electrodes. Although it is still unproven in hybrid cars, even the sceptical Dr Anderman thinks this chemical cocktail is “considerably less volatile” than conventional lithium approaches; furthermore, it has potential for lower cost and long life. A123's batteries can already be found in some Black & Decker power tools, where they deliver two to three times the run-time and peak power as rival batteries. A123 plans to supply Hymotion with batteries for plug-ins, and says it has the manufacturing capacity to make 10,000 such batteries a year.

Given that there are only a handful of plug-in cars on the road today, that figure sounds rather ambitious. Even so, the lesson offered by Professor Fate is that thinking big can eventually pay off. “The automobile business is a gigantic battleship, and after 30 years I may have moved it an inch,” reflects Dr Frank. That inch may yet grow to a mile. If the EPRI trial of plug-in Sprinter vans ends successfully, says Mr Graham, DaimlerChrysler is likely to produce a commercial version. Having long been dismissive of plug-ins, Toyota has confirmed that it is now seriously working on a plug-in Prius. Even Ford's boss, Bill Ford, has made encouraging noises about plug-in hybrids. Rising fuel prices and improving battery technology only strengthen the case for them. “This is here-and-now technology,” says Dr Frank with some satisfaction.

Copyright © 2006 The Economist Newspaper and The Economist Group. All rights reserved.

Economist.com
PRINT EDITION
TECHNOLOGY QUARTERLY
PRINTABLE PAGE VIEW SPONSORED BY

About sponsorship

Present at the creation

Jun 8th 2006
From The Economist print edition

Vinton Cerf was one of the founding fathers of the internet and has continued to take an active role in its development

IT WAS as a teenager in the late 1950s that Vinton Cerf first encountered a computer—an experience he still vividly recalls. The machine in question was a SAGE AN/FSQ-7 computer in Santa Monica, California, one of a national network of military machines, linked together by telephone lines, that was being built to monitor American airspace. “I was brought on a tour and got totally excited by it,” he says. “It was a tube-based machine, so big you physically walked inside it.” The SAGE machines—each of which contained 55,000 vacuum tubes, weighed 275 tonnes and occupied half an acre of floorspace—were in fact the largest computers ever built. Awestruck, the young Mr Cerf was soon “totally hooked” on computers. “I went to Stanford and took every computer course I could find,” he says.

After graduating in mathematics, Mr Cerf worked briefly at IBM, but soon returned to academia, eventually receiving a PhD in computer science from the University of California, Los Angeles, in 1972. During this time he helped to design and develop the protocol (called NCP) for the ARPANET, the first modern “packet switched” network, which linked together several different kinds of computer using a common protocol. In 1972 Robert Kahn, one of the architects of the ARPANET, began to think about how to take this idea one step further, and to link together packet networks (rather than just individual computers) of different kinds, a concept he called “internetting”. In 1973 he invited Dr Cerf, by now a professor at Stanford, to help with the design of a new protocol to make such inter-network links possible.

In May 1974 the two men published a paper, “A Protocol for Packet Network Intercommunication”, laying out their proposals. It refers to “internetwork packets” and “internetwork addressing”. By December 1974, when the full specifications for the new proposal were published in a document called RFC 675, the term “internetwork” had begun to be abbreviated to “internet”. The protocol that Dr Cerf and Dr Kahn designed, initially called “internet TCP”, was subsequently developed into TCP/IP, the protocol that still underpins the internet today.

As a result, Dr Cerf and Dr Kahn are often referred to as the fathers of the internet. They have received many awards over the years in recognition of the importance of their work, including the National Medal of Technology, the Presidential Medal of Freedom, and a Turing Award (the computer-science equivalent of a Nobel prize). Even so, Dr Cerf is keen to point out that many people were involved in the creation of the internet. “There were many of us,” he says. “As a father, I've learned you don't want to take too much credit for what your kids do, because when they screw up you don't want to take too much blame.”

Keep it simple

From its origins as an experimental network in the 1970s, the internet has since grown to become a global network with around 1 billion users and a dazzling range of applications, from Amazon and eBay to Napster and Skype. This growth and flexibility was possible because rather than prejudging the kinds of uses to which the internet might be put and favouring some at the expense of others, Dr Cerf and Dr Kahn opted to make it as simple as possible. “We deliberately did not try to tailor the network to particular applications, because we believed there would be applications we couldn't predict,” says Dr Cerf. “We hoped that having a very general packet-switched capability would support almost anything. So far, it has been true.”

Of all the various new applications that the internet has enabled, Dr Cerf says he has been most surprised by the emergence of the web, and particularly by the ensuing “avalanche of content” published by hundreds of millions of ordinary users. Another surprise, he says, was the widespread adoption of peer-to-peer (P2P) applications such as

Napster and Skype. The internet was originally designed for machine-to-machine communication (rather than, say, publishing information from a central source) so the emergence of P2P is entirely in keeping with the internet's original philosophy. Looking to the future, predicts Dr Cerf, “the thing that is going to surprise me will be the applications that come up in the mobile environment, where the utility of geographically based information is much greater.”

Is there anything he would change about the design he and Dr Kahn cooked up for the internet? Dr Cerf admits that with hindsight, there are two things he regrets not including: authentication, to ensure that internet packets really do come from where they claim to have originated, and support for mobile devices.

Since his pioneering studies in the 1970s, Dr Cerf has held a succession of jobs that mirror the development of the internet. After Stanford he continued his work on the internet's architecture at the Defence Advanced Research Projects Agency, the military research body that funded the network's original development. He then moved to MCI, a telecoms firm, where he developed MCIMail, the first commercial e-mail service to connect to the internet. After another spell in research, he returned to MCI in 1994 and remained there as the company became closely identified (now as part of WorldCom) with both the hysteria of the internet bubble and the subsequent telecoms crash.

Meanwhile, Dr Cerf also took an active role in internet governance. He and Dr Kahn founded the Internet Society in 1992, and Dr Cerf currently spends around 25% of his time serving as the chairman of ICANN, the body that regulates domain names and addresses on the internet. He describes this as “a form of penal servitude”—a reflection of the controversy and criticism that has surrounded ICANN from its inception.

In 2005 Dr Cerf was appointed “chief internet evangelist” at Google, the latest firm to embody the internet Zeitgeist, where he is once again in his element—shaping the future of the internet. “I am surrounded by some of the smartest people I've ever met,” he says. “It's an amazing experience—everyone is about 25, running at 900 miles per hour.”

“You feel as though you are having some impact on future generations when you are involved in this kind of thing.”

At Google, Dr Cerf plays several roles. “I'm playing intellectual bumble-bee, visiting engineering offices, interacting with engineers, trying to find out what problems they have, helping them find solutions,” he says. He also evaluates new companies or technologies that Google “should be engaged with or even acquiring”, and represents Google on policy issues. In February he appeared before the Senate Commerce Committee in Washington, DC, where internet regulation and the question of “network neutrality” have recently become hot topics. This is because large telecoms firms, such as AT&T and Verizon, are proposing to build internet “fast lanes”, which would allow them to charge users and content providers for speedy, guaranteed delivery of data. This has prompted a wave of protest from those, including Dr Cerf, who worry that this violates the fundamental non-discriminatory basis of the internet, and could thus hamper its innovative culture.

What particularly offends Dr Cerf about the telecoms operators' plans is that “they are trying to force us back into a 19th-century model in a 21st-century world,” he says. Under the old 19th-century model, telephone calls (like letters and parcels before them) are delivered from A to B, and the caller (or sender) pays the operator (or delivery firm) accordingly. The internet, however, operates on a completely different principle: users, whether giant corporations or individuals, simply pay for access to the network—the faster it is, the more it costs—and there are then no carriage or delivery fees. But Dr Cerf warns that although this simple approach has made possible all kinds of new services, the operators are now trying to move back towards the old model. “If we follow their logic, every time I send you an e-mail I will have to pay,” he says. Operators should simply recover their costs through access fees, he insists.

To infinity and beyond

Plans for internet “fast lanes” are also a personal affront to Dr Cerf, since they could undermine the open architecture that he has spent his career developing, and still continues to promote. In recent years Dr Cerf has been working with researchers at America's space agency, NASA, to develop an interplanetary internet (IPN). (The existing protocol is unsuitable for interplanetary use, because of the long time delays associated with communication over such long distances, and also because the topology of the network is in constant flux as planets and spacecraft move around.) This is not as crazy, or hypothetical, as it sounds. Some of the results of this work have already found their way into the *Mars Reconnaissance Orbiter*, a NASA probe that recently went into orbit around the red planet. And the IPN research turns out to have uses on earth as well, says Dr Cerf. Its “delay-and-disruption-tolerant networking” protocol is now being tested by America's defence department for use in mobile communications on the battlefield, and by researchers at UCLA who are working on wireless sensor networks.

But it is building networks in space that really appeals to Dr Cerf—a science-fiction fan who describes himself as a “frustrated thespian” and once had a brief walk-on part in “Earth: Final Conflict”, a sci-fi television series. “The NASA folks finally started doing a long-term space-communications architecture study, and it looks like we are now about to adopt these concepts as part of their 40-year plan for the further deployment of space platforms,” he

says. The idea is that future space probes will be IPN-capable, so that a network will gradually be built up, one spacecraft at a time. “The backbone will accrete over time as we launch new missions, so I won't see the fruition of all this, as it will take decades,” says Dr Cerf. But it is a logical culmination of his work on ARPANET (connecting individual machines) and the internet (connecting networks), since the interplanetary internet will eventually consist of interconnected planetary internets.

“It's so much fun to be part of all this,” says Dr Cerf, as he looks back at his remarkable career. “You feel as though you are having some impact on future generations when you are involved in this kind of thing.” Most people would probably be quite happy to retire after having helped to create the communications network for a single planet, but not Dr Cerf. At 62, he still feels he has work to do. “I don't know if I'm going to retire,” he says. “Being Vint Cerf is fun. I still can't quite believe I get paid for doing this stuff.”

Copyright © 2006 The Economist Newspaper and The Economist Group. All rights reserved.

Offer to readers

Jun 8th 2006
From The Economist print edition

Buy a PDF of this complete survey, including all graphics, for saving or one-click printing.

Reprints

Reprints are available should you wish to order extra copies of the survey. Please send your request to the relevant region:

Worldwide (excluding North America):

Rights and Syndication Department
26 Red Lion Square
London
WC1R 4HQ
United Kingdom

Tel: +44 (0)20 7576 8000
Fax: +44 (0)20 7576 8492
E-mail: rights@economist.com

North America:

Rights and Syndication Department
111 West 57th Street
New York
NY 10019
USA

Tel: +1 212 541 0532
Fax: +1 212 641 9808
E-mail: usrights@economist.com

Corporate offers and customised reprints

For corporate reprint orders of 500 or more and customisation options, please contact the Rights and Syndication Department in the relevant region:

Worldwide (excluding North America):

Rights and Syndication Department
26 Red Lion Square
London
WC1R 4HQ
United Kingdom

Tel: +44 (0)20 7576 8000
Fax: +44 (0)20 7576 8492
E-mail: rights@economist.com

North America:

Rights and Syndication Department
111 West 57th Street
New York

NY 10019
USA

Tel: +1 212 541 0532
Fax: +1 212 641 9808
E-mail: usrights@economist.com

Copyright © 2006 The Economist Newspaper and The Economist Group. All rights reserved.

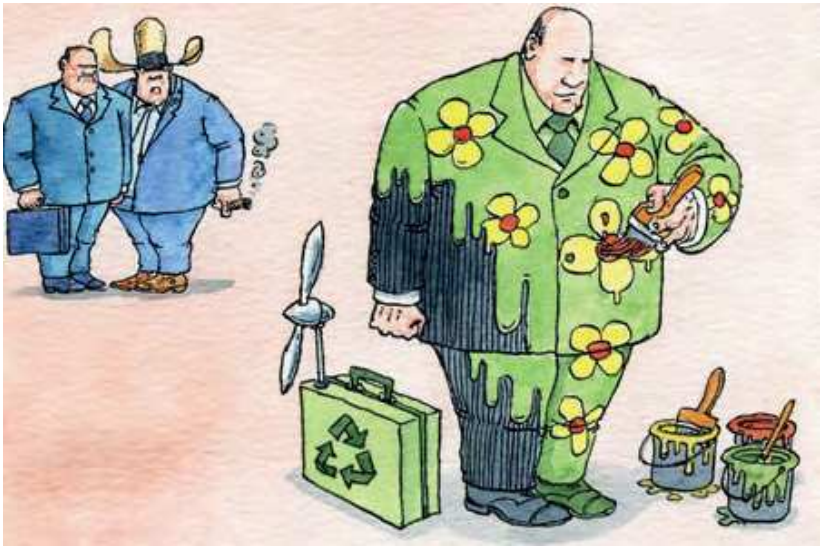
PRINTABLE PAGE VIEW SPONSORED BY

About sponsorship

Companies and climate change

Can business be cool?

Jun 8th 2006 | LONDON AND NEW YORK
From The Economist print edition



Why a growing number of firms are taking global warming seriously

Get article background

RUPERT MURDOCH is no green activist. But in Pebble Beach later this summer, the annual gathering of executives of Mr Murdoch's News Corporation—which last year led to a dramatic shift in the media conglomerate's attitude to the internet—will be addressed by several leading environmentalists, including a vice-president turned climate-change movie star. Last month BSkyB, a British satellite-television company chaired by Mr Murdoch and run by his son, James, declared itself "carbon-neutral", having taken various steps to cut or offset its discharges of carbon into the atmosphere.

The army of corporate greens is growing fast. Late last year HSBC became the first big bank to announce that it was carbon-neutral, joining other financial institutions, including Swiss Re, a reinsurer, and Goldman Sachs, an investment bank, in waging war on climate-warming gases (of which carbon dioxide is the main culprit). Last year General Electric (GE), an industrial powerhouse, launched its "Ecomagination" strategy, aiming to cut its output of greenhouse gases and to invest heavily in clean (ie, carbon-free) technologies. In October Wal-Mart announced a series of environmental schemes, including doubling the fuel-efficiency of its fleet of vehicles within a decade. Tesco and Sainsbury, two of Britain's biggest retailers, are competing fiercely to be the greenest. And on June 7th some leading British bosses lobbied Tony Blair for a more ambitious policy on climate change, even if that involves harsher regulation.

The greening of business is by no means universal, however. Money from Exxon Mobil, Ford and General Motors helped pay for television advertisements aired recently in America by the Competitive Enterprise Institute, with the daft slogan "Carbon dioxide: they call it pollution; we call it life". Besides, environmentalist critics say, some firms are engaged in superficial "greenwash" to boost the image of essentially climate-hurting businesses. Take BP, the most prominent corporate advocate of action on climate change, with its "Beyond Petroleum" ad campaign, high-profile investments in green energy, and even a "carbon calculator" on its website that helps consumers measure their personal "carbon footprint", or overall emissions of carbon. Yet, critics complain, BP's recent record profits are largely thanks to sales of huge amounts of carbon-packed oil and gas.

On the other hand, some free-market thinkers see the support of firms for regulation of carbon as the latest attempt at "regulatory capture", by those who stand to profit from new rules. Max Schulz of the Manhattan Institute, a conservative think tank, notes darkly that "Enron was into pushing the idea of climate change, because it was good for its business".

Others argue that climate change has no more place in corporate boardrooms than do discussions of other partisan political issues, such as Darfur or gay marriage. That criticism, at least, is surely wrong. Most of the corporate converts say they are acting not out of some vague sense of social responsibility, or even personal angst, but because climate change creates real business risks and opportunities—from regulatory compliance to insuring clients on flood plains. And although these concerns vary hugely from one company to the next, few firms can be sure of remaining unaffected.

The climate of opinion

The most obvious risk is of rising energy costs. Indeed, the recent high price of oil and natural gas, allied to fears over the security of energy supplies from the Middle East and Russia—neither of which have anything to do with climate change—may be the main reason why many firms have recently become interested in alternative energy sources. But at the same time, a growing number of bosses—whatever their personal views about the scientific evidence of climate change—now think that the public has become convinced that global warming is for real. Hurricane Katrina was particularly important in changing opinion in America. Many businessmen have concluded that this new public mood will result, sooner or later, in government action to control carbon emissions—most likely, using some sort of carbon tax or Kyoto-like system of tradable caps on firms' carbon emissions.

A carbon-trading system is already in place in the European Union. But even in America, some influential businesses are exerting pressure on the government to control carbon emissions. One motive is to help firms facing decisions that will depend for their long-term profitability on what carbon regime, if any, is in place. “Some asset-intensive industries are making investments now that have a 30- to 50-year horizon,” says Travis Engen, who recently stepped down as boss of Alcan, a big aluminium firm. “As CEO, I wanted to make damn sure my investments were good for the future, not just today”—which, for him, meant evaluating investments assuming that his firm would soon have to pay to emit carbon.

Indeed, some expect President Bush to start thinking more about climate change after November's mid-term elections, especially now that he has appointed a keen environmentalist as treasury secretary—Hank Paulson, who as boss of Goldman Sachs was the force behind the investment bank's greener stance. “American businesses are starting to realise that something is going to happen on carbon,” says Jim Rogers, chief executive of Duke Energy, one of the country's biggest power producers, who reckons legislation is quite likely to pass in Congress by 2009.

As firms try to do something about climate change, the typical first step is to improve their energy efficiency, by both reducing consumption and also shifting the mix of sources from hydrocarbons towards cleaner alternatives. Given high oil prices, those that have already done so have found energy efficiency to be surprisingly good for profits.

“Carbon Down, Profits Up”, a report by the Climate Group, an organisation founded in 2004 by various firms and governments, listed 74 companies from 18 industries in 11 countries that are committed to cutting greenhouse-gas emissions. So far, this has brought them combined savings of $11.6 billion, claims the report. Four firms—Bayer, British Telecom, DuPont and Norske Canada—account for $4 billion of this between them.

Many companies, including BP, also see the chance to make money from providing things that help reduce global warming—from clean coal-fired power-stations, to wind farms, to mortgages with better rates for homes that are carbon-neutral. GE plans to double its revenues from 17 clean-technology businesses to $20 billion by 2010. HSBC's decision to become carbon-neutral is part of a plan to develop a carbon-finance business, both for retail consumers and corporate clients. “We believe it is a major business opportunity for us, not a hobby or corporate social responsibility,” says Francis Sullivan of HSBC. And even as car firms lobby against regulating carbon, they are investing heavily in cleaner hybrid cars.

Going carbon-neutral—in which a firm cuts its carbon output as much as possible and then offsets any left over by paying to reduce emissions elsewhere—is particularly attractive to firms that sell directly to the public and reckon that their customers want them to take climate change seriously. Since these sorts of firms are often not great carbon-emitters in the first place, “carbon neutrality” can be fairly painless. “Trusted consumer-facing brands can be the missing link, helping millions of people to aspire to lower-carbon lifestyles and begin to tackle an issue that feels overwhelming,” intones BSkyB's James Murdoch, optimistically.

A recent study by the Carbon Trust, a British quango, reckoned that, for industries such as airlines, up to 50% of brand value may be at risk if firms fail to take action on climate change. This figure is challenged by many in the industry who point to the low take-up of British Airways' service enabling passengers to offset their flight's carbon emissions. And there's the rub. A growing number of companies—urged on by shareholders who see greenery as a sign that managers are thinking long-term—are ready to do something about climate change. It remains to be seen whether their customers are willing to pay the price.

Copyright © 2006 The Economist Newspaper and The Economist Group. All rights reserved.

Business in Japan

Moving in on Murakami

Jun 8th 2006 | TOKYO
From The Economist print edition

A charismatic fund manager is arrested for insider dealing

THE spectacle that heralded the arrest of Yoshiaki Murakami, a powerful yet controversial investor, on June 5th, had people glued to their televisions. Mr Murakami staged an unprecedented show during an 80-minute press conference at the Tokyo Stock Exchange, five-and-a-half hours before his arrest. The exchange has never before let anyone hold a press conference in its building during trading hours. Nor has a man talked to the press and offered to take questions and criticisms—while admitting that he had signed a confession the day before and that he was on the verge of being arrested for insider dealing. Mr Murakami declared that this would be "his last press conference" before "retiring from the world of investments".

Reuters

Shareholder activist at bay

He told reporters that in September 2004 he had approached livedoor, an internet company in which Takafumi Horie, its former president, and three other former officials have since been arrested for accounting fraud and other offences. (Mr Horie claims he is innocent.) Mr Murakami's idea was to build up a stake in Nippon Broadcasting, a radio station, which owns Fuji Television, the biggest public broadcaster. In November an excited Mr Horie and his chief financial officer told him they wanted to launch a takeover bid for Nippon Broadcasting and that they had put aside enough funds to do so.

Mr Murakami says he did not take them seriously. Still, he kept on buying Nippon Broadcasting shares. On January 6th 2005, after livedoor asked him for his help in a takeover bid, Mr Murakami's share purchases accelerated. When livedoor told the world of its intention to take over Nippon Broadcasting, shares in the radio station rose sharply. Mr Murakami sold much of his stake in the markets (rather than to livedoor or Fuji Television, which were locked in a bitter battle) at a reported gain of ¥3 billion ($27m). "I didn't mean to break the law or profit from the information, but I had to agree with the prosecutors that I did hear talk that turned out to be insider information. As a professional among professionals, I have to take responsibility for such a mistake."

Prosecutors appear to have a different version of events, which has leaked to the local press through "sources close to the investigation". They claim that Mr Murakami set livedoor up to stage a takeover bid, to help him sell his already large, but poorly performing, stake in Nippon Broadcasting, at a high price. If so, this suggests a charge of collusive bidding, rather than simple insider dealing. Such a charge would be hard to prove in court, though, without confessions from Mr Horie or Mr Murakami. Still, Mr Murakami is in effect being tried in public through the press first, a method used during the livedoor scandal and one that many deplore.

Politicians are also laying into Mr Murakami. Kaoru Yosano, the financial-services minister, has said that: "People who have been called the golden boys of investments and did not have enough self-awareness to follow the securities law should be feeling ashamed of themselves." The upper house of the Japanese parliament passed a law on June 7th that created stricter penalties for insider trading and other securities violations.

Mr Murakami, who is embroiled in a bitter battle with Hankyu Holdings, a railway operator, over his 46% stake in Hanshin Electric Railway, has said he will sell his stake to Hankyu. This should net him a huge profit, as well as leaving two-thirds of his ¥400 billion fund in cash, allowing him to offer investors in his fund the chance to redeem their shares early.

Mr Murakami stands by his principles, though. “What is wrong with making lots of money as long as you don't break the rules? You all hate me because I made big profits,” he told reporters. This dig hit a nerve. Many people alarmed at the polarisation of wealth in Japan do indeed resent high-flyers like Mr Murakami and Mr Horie—who lived and worked in the same glitzy complex of flats and used to meet in the gym and for meals. Some critics fear that the recent crackdown on securities violations amounts to the selective prosecution of the flamboyantly wealthy. A top prosecutor hinted as much last year when he vowed to go after rogues who make profits at the expense of working people with sweat on their brows.

All of this is making some foreign investors anxious about the future direction of Japan. Peter Tasker of Arcus Investment points out that Japanese firms have tended to pay very low dividends by international standards. “Japan needs activist shareholders,” he insists. If the downfall of Messrs Murakami and Horie allows Japanese companies to return to the sleepy world, in which minority shareholders could be safely ignored, the entire country could suffer.

Copyright © 2006 The Economist Newspaper and The Economist Group. All rights reserved.

Pharmaceuticals

Nothing to sniff at

Jun 8th 2006 | NEW YORK
From The Economist print edition

The over-the-counter drugs industry looks set for consolidation

Get article background

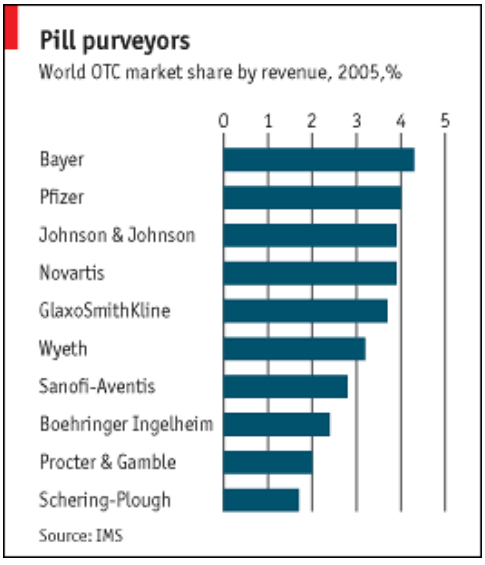
SINCE the days of the wandering snake-oil salesmen, the business of "over the counter" (OTC) medicines has lacked glamour. For one thing, the market for prescription pharmaceuticals is far bigger and more profitable than the $117 billion global market for OTC drugs. For another, the brightest researchers prefer to work on glamorous life-saving drugs rather than on mundane stuff like cold remedies. The head of research for an American OTC firm has been known to joke: "If the customer takes our syrup, his cold will go away in seven days; if he doesn't, it'll go away in a week."

Perhaps it is no surprise then that Pfizer, the world's biggest pharmaceutical firm, has let it be known that it is thinking of selling its OTC arm—which peddles, among other things, Listerine mouthwash, Rogain, an anti-baldness treatment, and Benadryl allergy pills. June 6th was the deadline for outsiders to bid for the division, which Goldman Sachs, an investment bank, reckons may fetch $10 billion-12 billion. Britain's GlaxoSmithKline and America's Johnson & Johnson (prescription-drugs firms with big OTC arms), as well as Reckitt Benckiser, a British household-products firm, and others are rumoured to have placed bids. Pfizer is expected to unveil a shortlist of bidders in a matter of weeks and—assuming the board decides not to float the division on the stockmarket—a final sale will probably take place this autumn.

But this week's reported bidding frenzy raises an awkward question. If outsiders find Pfizer's OTC division so desirable, why is the firm eager to get rid of it? Revenues at the consumer division are nothing to sneeze at: they made up $4 billion of the company's overall sales of roughly $51 billion last year. While its prescription-drug sales have stagnated, OTC sales grew 19% in 2004 and 10% last year; Goldman Sachs reckons the division had profit margins above 15% for the past two years. What is more, the OTC business is generally much less risky than the expensive and frustrating quest for the next breakthrough prescription drug.

But that may be one reason why Pfizer is flogging its OTC division. Between 2005 and 2007, the firm is set to lose patents on drugs earning some $14 billion a year in revenues. Finding new drugs to replace them will cost many billions of dollars. During that same period, the firm also plans to launch perhaps ten new prescription drugs, which will also need lots of marketing money. Selling the consumer business will bring in much-needed cash and may focus managers' attention.

Pfizer may also reason that this is a particularly good time to sell an OTC company. The sector looks ripe for consolidation. Andy Tisman of IMS Health, a consultancy, points out that none of the leading OTC firms holds even a 5% share of the world market (see chart), and the top ten command less than a third. A merger wave began last year when Reckitt Benckiser paid £1.9 billion ($3.4 billion) for Boots Healthcare International (BHI), which owned popular brands like Nurofen and Clearasil. As that valued BHI at over 20 times earnings, Pfizer bosses took immediate notice.



Bigger OTC firms would be better placed to establish global brands and capitalise on growth in developing markets—especially China. Euromonitor International, a research outfit, estimates that while global OTC sales will grow at 3% per year from 2005 to 2010 (and sales in Japan and America at barely 2%), sales in China should soar by 9% a year over the same period.

At present Pfizer has only a weak presence in China's OTC market. It does, however, have a strong prescription-drug business there, but that has been hobbled by piracy and legal battles over intellectual property—until now. Just this month, a Chinese court upheld Pfizer's patent protection on Viagra, the firm's much-pirated prescription remedy for impotence. And although the Chinese

customers' taste for the delights of Western OTC products like Listerine mouthwash remains to be proven, nobody doubts that the country has a gargantuan appetite for impotence remedies. If you doubt that, ask any of the few remaining rhinoceroses in Africa.

Copyright © 2006 The Economist Newspaper and The Economist Group. All rights reserved.

Economist.com BUSINESS
PRINTABLE PAGE VIEW SPONSORED BY
About sponsorship

Natural foods

Wal-Mart goes crunchy

Jun 8th 2006 | PLANO, TEXAS
From The Economist print edition

The rise of Big Organic

"TEXAS" and "organic" are not words that generally appear in the same sentence. But Wal-Mart is doing its bit to change that. At the company's 24-hour "supercentre" in Plano, a McMansionised suburb of Dallas, boxes of organic apples, bananas and kiwis nestle close to the entrance, and the meat department is stacked high with "all natural" chicken. You can find spinach-flavoured organic baby food and dairy products supplied by Horizon Organic in Colorado.

Wal-Mart opened the Plano store this spring, as a laboratory for new products. The several hundred organic and "natural" items are a highlight. On the non-organic side, it has a posh coffee shop offering raspberry-truffle lattes, a good wine selection and an excellent sushi bar. Wal-Mart, built on the idea that ordinary folk want good, honest value-for-money, is reaching out for the yuppie dollar.

The firm is hardly alone in embracing organic food. The age of "Big Organic" has dawned. In the spring Supervalu, which owns Albertson's and other grocery stores, started a line of organic apple sauce, canned tomatoes and other delicacies. Safeway, another grocer, launched its organic line in January. McDonald's is pumping out radio advertisements in New England for its coffee, which is now blended with beans from Newman's Own Organics. Everyone, it seems, is envious of Whole Foods Market, an Austin-based chain, which has seen its share price rise by nearly 900% in a decade.

But can big companies and organic food co-exist? After all, "organic" used to suggest small farms or co-operatives supplying locally produced, fertiliser-free food. Now the market is worth about $14 billion a year. Although that accounts for less than 3% of America's retail-food sales, the segment claims to be the fastest-growing part of the food market in America. The "organic" label costs more, but it is becoming a big business.

Greens have mostly embraced the trend. "By and large, it's a very positive thing," says Paul Rauber, an editor at *Sierra* magazine. Even so, he predicts: "As the big boys get into the market, there's going to be more of a push to water down the organic standards." Some American producers worry especially about lax oversight of organic certification for imported foods.

There are also supply problems. At some Whole Foods stores, up to 60% of the produce is organic in the summer—but that number dips in the winter because "natural" food has to respect the seasons. There is also a shortage of organic farms. "The sheer number of stores [offering organic products] has stressed the system," says George Siemon, chief executive of the Organic Valley co-operative. The fertilisers and hormones that make mass agriculture easier are banned in the organic business.

Then there are pricing pressures brought on by large retailers. Organic Valley withdrew from supplying milk direct to Wal-Mart a few years ago after being undercut by a "significant" amount in price by its rival, Horizon Organic. But, says Mr Siemon, demand still exceeds supply—and with his co-operative growing 15-20%, there may soon not be enough organic milk to go around.

Copyright © 2006 The Economist Newspaper and The Economist Group. All rights reserved.

Economist.com BUSINESS
PRINTABLE PAGE VIEW SPONSORED BY
About sponsorship

Electronic signatures

Just sign here

Jun 8th 2006 | SAN FRANCISCO
From The Economist print edition

Innovators and lawyers are deconstructing the meaning of "to sign"

AMERICA'S E-Sign Act of 2000 officially defined "signature" as any "sound, symbol or process" that is logically associated with a document, a person and an intent, and most other countries have passed similar laws. These are not mainly aimed at savage chieftains who seal treaties with the proverbial X or a grunt, but at the infuriating inefficiencies of ink in the internet era. One case study found that it takes ten days for a bank to process a simple student loan that should take one day, because the bank has to print out the online forms and courier them to the applicant for signatures, then wait for them to be returned by post only to scan them back into digital form.

"Digital signatures", first tried in the 1970s, were supposed to overcome this bottleneck, but have mostly failed. That is because most digital signatures require the parties in a transaction to have compatible software—the signer needs to have an encryption algorithm called a "private key" on his computer, and everybody else needs a "public key" to unlock the signature. To that student who wants a loan, say, this process is exactly as mysterious and off-putting as it sounds.

DocuSign, a firm in Seattle founded in 2003, thinks it has now cracked this nut with a new (and patented) process that requires no software except a normal web browser. It works as follows: the bank (in this example) creates an account with DocuSign and uploads its forms to DocuSign's computers. When the student applies for a loan, he gets an e-mail from the bank with a link to the document on a new web page. He answers a few questions ("In what state was your social-security card issued?", say) that are checked against data from a credit bureau, and if he is who he claims to be, he then chooses an image of his name from a list of fonts, and the document is signed. That image is mostly for reassurance. Court Lorenzini, DocuSign's boss and co-founder, says that the method must authenticate, leave an audit trail and make a document "non-repudiable". If it does all that, it is what used to be called a signature.

Copyright © 2006 The Economist Newspaper and The Economist Group. All rights reserved.

PRINTABLE PAGE VIEW SPONSORED BY

About sponsorship

China's art business

Painting by numbers

Jun 8th 2006 | BUJI AND HONG KONG
From The Economist print edition

China is commercialising its art, both high and low

BUSINESS has long been considered an art in China. Now art is turning into a business—at both ends of the scale. At one extreme is the rising popularity of contemporary Chinese painting. The explosion of creativity that followed China's opening to the world has produced a generation of edgy, expressive and increasingly collectible artists. Prices are soaring for Wang Guangyi's pop-art revolution paintings featuring Western consumer brands, Fang Lijun's bald-headed figures or Yue Minjun's grinning men. Art schools and auction houses are springing up on the mainland and galleries around the world are suddenly interested in Chinese art.

So are the international auction houses. A sale of 20th-century Chinese art by Christie's in Hong Kong last month raised HK$214m ($27m) from around 150 works—a world record for a sale of Chinese art. Mr Wang's "Rolex" sold for more than $500,000, almost seven times the top estimate. In March Sotheby's in New York sold a painting by Zhang Xiaogang for almost $1m. Both firms plan to increase the number of modern Chinese art sales to meet demand.

Sameena Ahmad

Classics with Chinese characteristics

Just across the border from Hong Kong, but a world away from its elegant auction rooms, lies the Dafen "oil painting village". Art is a business here, too, but it is art of a rather different kind. The "village", in reality a square kilometre of concrete buildings in Buji, a town outside the booming southern city of Shenzhen, boasts 700 gallery shops. Some are open-air, piled high with canvases, ceilings festooned with paintings strung out to dry, others are huge air-conditioned rooms lined with framed paintings. Visitors can ask for anything, made to order or off the shelf: famous European landscapes hang next to garishly coloured animal paintings, which rub shoulders with the "Mona Lisa". All are fakes, hand-copied with startling accuracy in oils—and each costs just a few dollars (the frame is thrown in for 50 cents).

Dafen—and other villages like it—are bringing the factory assembly-line into the artist's studio. In a dimly lit hall on the outskirts of Dafen, "painter workers" stand side by side dabbing colours onto canvas. Liu Chang Zhen, a 27-year-old, works eight hours a day to complete more than 200 canvases a month—painting several copies of a picture at a time, methodically filling in the same patch on each before moving to a new part. At other factories, painters work on the same product, but specialise in different parts—in ears or hands or trees. They work from art books, postcards and images from the internet. Sometimes they just paint inside an outline copied electronically from a photograph, enlarged and stamped on the blank canvas. Mr Liu, formerly a maths teacher in Shangdong province, has no artistic training and no pretensions. He points to a monthly salary of 1,500 yuan ($188): "I can make good money if I work hard."

Fang Yuen at the village's government office, says Dafen is home to 5,000 such "painter workers" who churn out the cheapest imitations, plus another 3,000 more skilled "painters". At least ten painting villages are nearby, employing up to 30,000 people. In an echo of China's conquest of industries from clothes to toys to electronics, they are turning painting into a mass-market industry, destroying their competitors with unmatchably low prices.

And consumers are buying. Shimooka Hidetoshi and Sadaaki Kanna, two Japanese businessmen, perch on rickety stools in the sweltering open air at the Tei Mei gallery, and flick through a book of Impressionist prints. Chinese men, dragging on cigarettes and slurping tea from jam jars, lay out canvas after canvas and argue over price. The gallery owner says he can replace a disciple in Leonardo Da Vinci's "Last Supper" with Mary Magdalene—fans of Dan Brown's "The Da Vinci Code" have been asking for that. Other tourists like Leonardo's "Mona Lisa" with Chinese characteristics and a toothy leer or Van Gogh's "Sunflowers"—the most popular seller in Dafen—painted in blue. The Japanese settle for a standard "Mona Lisa" and "Last Supper"—all for 350 yuan, including elaborate frames.

For the moment, most of the buyers are international. Newly rich Russian businessmen, Florida condominiums, Middle Eastern hotels and American retailers feature prominently. Americans commission family portraits over the internet. Yu Wei, a manager at Ji Yi Yuang, the biggest supplier of paintings in Dafen, sends 15 to 20 containers of

paintings—some 80,000 canvases—overseas each month. But more middle-class Chinese are also buying. “Many rich business people in China had little schooling,” says Liang Jian, art director of Dafen. “With a Western painting in his office, clients will say, ‘He has had a good education.’” With home ownership growing, ordinary Chinese want to decorate their walls, as do the many new hotels and restaurants. And more and more Chinese are not just buying Western paintings but contemporary Chinese ones.

Increasingly, the two art worlds are starting to collide. Dafen is capitalising on the growing appeal of contemporary Chinese art by copying it. Among the Old Masters, discerning browsers can find some rather good grinning Yue Minjun copies selling for a bargain 125-300 yuan. Nicole Schoeni, who runs one of Hong Kong's most respected Chinese art galleries, says: “The shops take our catalogues and say, ‘We can do this in any colour or size you like, tell us what you want.’” Some fakes are also being sold to serious collectors.

Some well known modern Chinese painters are now also rumoured to be getting assistants to paint their pictures—and only signing the finished product. “I advise my clients to buy paintings done in the 1990s,” says a gallery owner.

Meanwhile galleries at Dafen are increasingly featuring original works, which can make better money. The Ji Yi Yuang gallery, which once sold only reproductions, now offers a thousand of its own designs, mainly to wholesalers in Italy and Dubai, who sell them on to restaurants and hotels for $200 each. Yu Wei, a gallery manager says, “there's no money in Western reproductions. Too many galleries make them.” He can get at least $20 for each canvas depending on the size. As the painting villages climb up the value ladder and the contemporary artists climb down it, it may become difficult to tell what is real and what is fake. Whether that proves bad for business is another matter.

Copyright © 2006 The Economist Newspaper and The Economist Group. All rights reserved.

Face value

A press lord's progress

Jun 8th 2006
From The Economist print edition

Britain's best-known family newspaper empire has hit choppy waters. But it may be better placed than it looks

Associated Newspapers

THIS week the Daily Mail and General Trust (DMGT), one of the biggest newspaper groups in Europe, received a bit of bad news. It has been dropped from the FTSE 100, the index of Britain's leading companies, ending seven years at corporate Britain's top table. DMGT's demotion, not to mention the loss of a fifth of the company's market value since the beginning of the year, is further discouragement for the newspaper industry, which is in a state of near crisis around the world as the internet changes the habits of readers and advertisers. It will also come as a personal blow to Lord Rothermere, the company's chairman and controlling shareholder.

Lord Rothermere took over at DMGT eight years ago, when he was only 30 and had little experience of the firm. His father Viscount Rothermere died of a heart attack in 1998, and some wondered whether Jonathan Harmsworth (as he then was), with his privileged background and boyish manner, was really ready to take over. But Lord Rothermere himself was in no doubt: “I knew that the company would face massive change,” he says, “and I was uncomfortable with the idea of a third party taking charge.” The board of DMGT discussed whether to find a non-executive chairman to stand in for a while, but in the end decided to plump for the son and heir.

In fact, history had repeated itself. His father, Vere Harmsworth, inherited a company that was in trouble and was also dismissed by some as a lightweight. But he turned the *Daily Mail* from a broadsheet into a tabloid in 1971, helped change its formula to make it more appealing to women and launched new titles, with great success. The *Daily Mail* now sells 2.4m copies a day, the third-largest circulation in Britain. It continues to dominate the middle of the market in Britain's highly competitive newspaper business—and is still very profitable.

The current Lord Rothermere has shown that he, too, is willing to change with the times. A notable achievement is *Metro*, a free newspaper. In the late 1990s Lord Rothermere went to Stockholm to look at a free-newspaper firm called Metro International. He travelled on the city's subway, saw how commuters enjoyed a free read and came back convinced that if DMGT did not publish such a paper in Britain, someone else would. In 1999 he started *Metro*, which now has a circulation of over 1m copies, lots of young readers and fast-growing revenues and profits. It is true that *Metro* is stealing sales from the *Daily Mail* and from another of his papers, the London *Evening Standard* (which has started to lose money), but at least DMGT is capturing profits from the new trend.

Does the *Daily Mail* need to change in other ways? Its editor, Paul Dacre, made it the success story of British journalism of the past decade by tapping into the hopes and fears of “Middle England”—and defying liberal attitudes on issues like immigration and crime. But the industry is having difficulty getting young people and ethnic minorities to buy papers. Lord Rothermere muses that: “If you're a young Pakistani the mainstream press might

not appeal." He thinks young people also prefer news that is not opinionated, pointing to *Metro*'s unbiased articles. The *Daily Mail* reinvented itself once under his father, he says, and will have to keep evolving to remain popular with its audience. It sounds like a coded call for a kinder, gentler *Daily Mail*, but Lord Rothermere says that it is his duty to support Mr Dacre completely, even if he disagrees with some of the paper's views.

In any case, the Rothermere empire faces a more direct threat than slow-moving social change. The internet menaces most of DMGT's titles because classified and (to a lesser extent) display advertisements are moving online. Some in the City of London reckon that Lord Rothermere may now find it hard to steer DMGT, which has a stockmarket value of £2.6 billion ($4.8 billion) through an extremely testing time. Last November DMGT amazed the media industry by announcing the sale of Northcliffe, its regional-newspaper division, which contributed 35% of its operating profit in 2005. The business has been part of the firm since its early years in the 1920s, but it is suffering as classified advertising wanes. A problem with the sale, however, was that DMGT had pension funds in deficit, and their trustees would have seized part of the proceeds. DMGT underestimated the size of the pension-fund issue, says Lord Rothermere, and the firm also decided on closer inspection that Northcliffe was still attractive. DMGT cancelled the auction in February.

Order out of chaos

The episode left an impression of chaotic management. The firm's shares have fallen by 21% since the beginning of the year, compared with a 1% rise for the FTSE 100 as a whole. But in fact, DMGT is developing a thoughtful long-term strategy, with the help of a group of managers whom Lord Rothermere inherited from his father's time. The firm has been pursuing a diversification away from newspapers since the early 1990s. In 2005, 44% of its profits came from sources other than newspapers, including a global exhibitions business with shows in America, China, India and elsewhere, as well as a number of business-to-business enterprises.

The company is also trying to build profitable digital businesses. As well as dozens of newspaper websites, DMGT owns several consumer-internet businesses, including dating and recruiting sites, and it has recently acquired Primelocation.com, a property site, for £48m. "DMGT now has the strongest digital portfolio of any newspaper company in Britain," says Paul Zwillenberg, the head of media and entertainment at OC&C Strategy Consultants. Like his father before him, Lord Rothermere is a newspaper man through and through. But the fate of his company may depend increasingly on how successfully he can diversify away from a troubled industry.

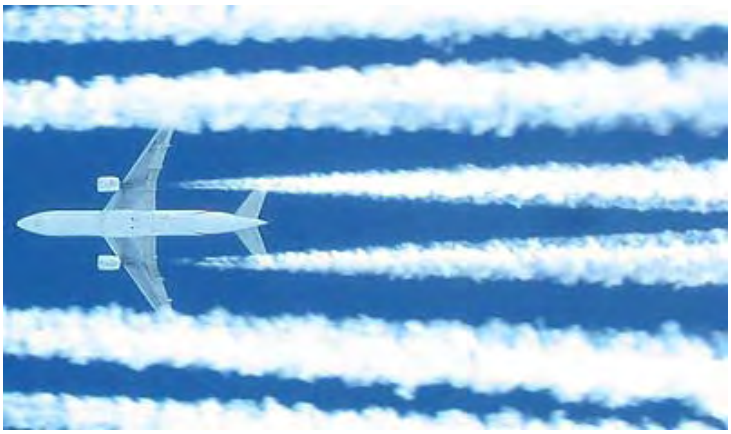
Copyright © 2006 The Economist Newspaper and The Economist Group. All rights reserved.

Aircraft emissions

The sky's the limit

Jun 8th 2006
From The Economist print edition

aviation-images



Air travel is a rapidly growing source of greenhouse gases. But it is also an indispensable way of travel

Get article background

THE double-decker A380, the biggest airliner the world has seen, landed at Heathrow last month to test whether London's main airport could handle the new 550-seater, due to enter commercial service at the end of this year. It was a proud moment for Britain's Rolls-Royce, the makers of the aircraft's Trent 900 engines. Rolls-Royce says the four Trents on the A380 are as clean and efficient as any jet engine, and produce "as much power as 3,500 family cars". A simple calculation shows that the equivalent of more than six cars is needed to fly each passenger.

Take the calculation further: flying a fully laden A380 is, in terms of energy, like a 14km (nine-mile) queue of traffic on the road below. And that is just one aircraft. In 20 years, Airbus reckons, 1,500 such planes will be in the air. By then, the total number of airliners is expected to have doubled, to 22,000. The super-jumbos alone would be pumping out carbon dioxide (CO_2) at the same rate as 5m cars.

That may not seem much compared with the 60m vehicles that pour off assembly lines every year—or the 1 billion vehicles already on the world's roads. But whereas cars are used roughly for about an hour or so a day, long-haul jet airliners are on the move for at least 10 hours a day. And they burn tax-free, high-octane fuel, which dumps hundreds of millions of tonnes of CO_2 into the most sensitive part of the atmosphere.

Aviation is a relatively small source of the emissions blamed for global warming, but its share is growing the fastest. The evidence is strong that emissions from jet engines, including the streaks of cloud (called contrails) they leave behind in the sky, could be especially damaging. As a result, aviation is increasingly attracting the attention of environmentalists and politicians. Amid much controversy, CO_2 caps and carbon-trading could soon be used to help curb aircraft emissions.

Frequent flyers, free riders

Airlines are accused of having a free ride in terms of air pollution because they pay no tax on the fuel they use for international flights. Even though today's aircraft are about 70% more efficient than those of 40 years ago, concerns over emissions have grown. Despite booming demand for air travel, many airlines are losing money. Now green campaigners want people to think twice before they fly.

The clamour is particularly loud in Europe, where low-cost carriers are expanding fast on busy short-haul routes. The European Parliament will vote in July on a proposal to cap aircraft emissions and include them in the European Union's emissions-trading scheme for CO_2 (called ETS). The proposal has world wide implications because it would

cover all flights using EU airports—including international services.

America is deeply unhappy at the prospect of its airlines being caught up in devices like ETS. Sharon Pinkerton, a senior representative of the Federal Aviation Administration insisted, on a visit to Brussels last year, that American carriers should be exempted from the scheme. This sets the scene for another transatlantic aviation row, to add to the two bitter and long-running disputes over subsidies to Europe's Airbus and the liberalisation of air traffic between the two continents.

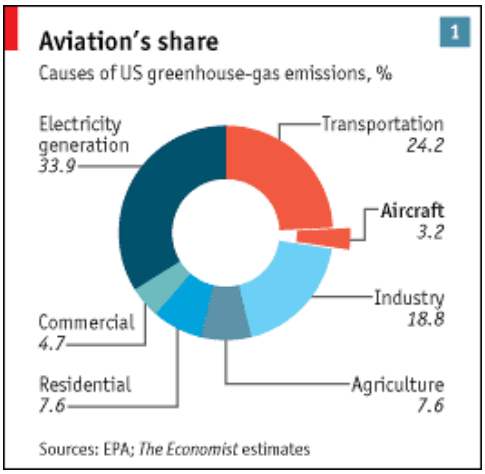
The airlines are growing nervous. The big international carriers represented by the International Air Transport Association (IATA) would rather Europe waited for the deliberations of a United Nations body, the International Civil Aviation Organisation (ICAO), which has set technical, legal and safety rules for more than 50 years. International aviation was excluded from the Kyoto protocol on global warming, but only on condition that, by the end of 2007, countries and airlines worked under the umbrella of ICAO to come up with a way of reducing emissions through a trading scheme.

Soon after the end of the second world war the member governments of ICAO agreed that airlines should be free of fuel taxes. Some say this was to outlaw unilateral taxes that could distort markets, but others reckon it was done to boost the fledgling airline industry emerging from the fighting. The corollary was that aviation, unlike motor traffic and other forms of transport, would pay in a transparent manner for the infrastructure and services it required—air-traffic management, landing charges, flyover rights and so on. That was supposed to take care of the external costs. But no one in those days thought much about the environment.

Counting the cost

It was not until 1999 that the United Nations Intergovernmental Panel on Climate Change (IPCC) attempted to pin down the effect of aviation on the environment. Transport as a whole was judged to be responsible for about a quarter of the world's CO_2 discharges. That makes it one of the biggest sources, alongside power generation and households, as a source of the gas (see chart 1). Within transport, aviation accounts for about 13%. Its contribution to total man-made emissions worldwide is said to be around 3%.

So why all the fuss about so little? One reason is that high-altitude emissions are probably disproportionately damaging to the environment. The nitrogen oxides from jet-engine exhausts lead to the formation of ozone, another greenhouse gas. Contrails are also suspected of enhancing the formation of cirrus clouds, which some scientists think adds to the global warming effect. The IPCC estimated that the overall impact on global warming of aircraft could be between two and four times that of their CO_2 emissions alone, though there is no scientific consensus about the size of this multiplier. The EU, for instance, thinks it is only two.

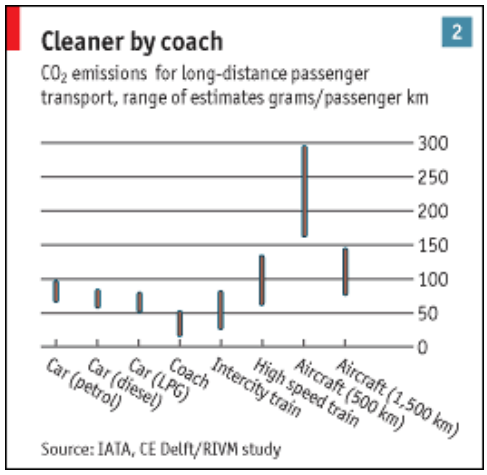


Naturally, the airlines choose to measure the greenhouse gases they produce in the way that casts them in the best light—a trick they deploy on safety statistics, too. For instance, over half of aircraft accidents occur around take-off and landing. So accidents per passenger-mile compare very favourably with other means of transport. But at least one study has shown that, if accidents are measured per journey instead, aircraft are the second-most dangerous way of travelling, after motorcycles.

Likewise on greenhouse gases. IATA says an aircraft's fuel consumption is about the same as that of a family car, at 3.5 litres per 100 passenger-kilometres. So CO_2 emissions are similar. But that is true only if the aircraft is full and the car's passenger seats are empty. And even then, a jumbo jet flying from London to Sydney would be like nearly 400 Volkswagen Polos each travelling just over 16,000km—the average distance a European drives in a year. In other words, although cars and aircraft discharge roughly the same amount of CO_2 for each passenger-kilometre, the aircraft travel an awful lot farther.

In America, land of the gas-guzzler, the Federal Aviation Administration has calculated that the energy used to carry one passenger for one mile is greatest in sport-utility vehicles, pick-up trucks and transit buses. It says cars and commercial aircraft come out roughly equal. But a study for the European Commission reached a different conclusion. Assuming that aircraft are 70-75% full and cars contain 2.5 people (since longer distances usually imply family trips), CE Delft, a Dutch consultancy, came up with a comparison between different forms of travel (see chart 2). Coaches performed best, followed by liquefied-gas and diesel-powered cars or inter-city trains. Long-haul flights of more than 1,500km were 50% worse than petrol cars for each passenger-kilometre. Short-haul flights (where a smaller proportion of the time is spent on energy-efficient cruising and more on profligate climbing and descending) were fully three times worse than petrol cars.

What this means is that the eco-conscious European consumer who jets off for a series of weekend breaks is destroying his day-to-day carbon parsimony. You can buy a hybrid car, switch to low-energy light bulbs in your house and eat locally grown organic food. But the dozen daily decisions on which you base your husbandry are trivial compared with the handful of yearly choices about that holiday or this business trip.



IATA likes to make the point that civil aviation is a $400 billion business and its economic contribution is much greater than its share of carbon emissions. Four-fifths of aviation's CO_2 comes from long-haul trips of more than 1,500km, where there is no practical alternative to flying. About one-in-four airline passengers are travelling for business, with the presumption that their journey is really necessary. In any case, the demand for air travel is powered by economic growth and especially by increasing wealth. In 1980-2003 the energy consumed by commercial aircraft grew by 75% worldwide, but in rich countries it rose by 165%.

Over the long term, the growth in aviation has slackened from about 10% a year to around 5% a year, but it shows no sign of falling below that. Boeing, Airbus, the aircraft-engine makers and the airlines all work on the assumption that demand will continue to grow at that rate. To justify its faith in the market for the new A380, Airbus has even calculated that the annual increment in air travel as 2020 approaches will equal the total number of miles flown in 1969, the year that Boeing launched its first jumbo jet.

Friends of the Earth commissioned a study from the Tyndall Centre for Climate Change Research to work out what growth of 6.4% a year (its average through the 1990s) would mean for Britain over the next 40-50 years. It concluded that the total CO_2 discharges from air-traffic would soon offset all the reductions in carbon emissions scheduled under British government policies to comply with Kyoto. The European Commission (presumably neutral on such matters) accepts that, by 2012, the growth in aviation would offset more than a quarter of the reductions that its richer members hoped for.

If air travel is indispensable, so too is the technology that powers it. Jet engines have been getting more efficient at a rate of about 1% a year. According to Sir John Rose, chief executive of Rolls-Royce, they can be expected to continue doing so. But he warns: “technological innovation alone cannot solve this.” In aviation, both engine and fuel need to be powerful and light and no power source can rival the energy density of aircraft kerosene.

Hydrogen fuel cells may one day routinely power emission-free buses and cars, but the need for strong heavy tanks and fuel-cell stacks rules hydrogen out for aircraft. Boeing once toyed with a blended wing-body, a sort of flying wing, to produce dramatically better aerodynamics and fuel efficiency. Passengers would have sat in a wide cabin, rather like a small amphitheatre. But tests with a mock-up produced such a negative reaction that the company dropped the technology, except for military refuelling aircraft.

EPA

That's bigger than my VW

One way to cut aircraft emissions would be to improve air-traffic control. IATA reckons that a cut of 12% could be made from changes such as putting European air-traffic control under one organisation instead of the 35 different national bodies that now operate the network. IATA has already brokered deals to cut corners off international air lanes that twisted and turned to follow national borders or to avoid military-training areas. One recent example is a new route over China which will cut 30 minutes off flights between China and Europe, saving each year nearly 3,000 hours of flight time, 27,000 tonnes of fuel and over 84,000 tonnes of CO_2.

Waiting to land

Crowded airports compound the problem. Busy runways at places such as Heathrow mean aeroplanes have to circle wastefully. The possibility of being held up ensures that pilots carry extra fuel, thereby increasing the aircraft's weight and, hence, its consumption of fuel. Other small changes could further save fuel and avoid carbon emissions: aircraft could be towed everywhere on the ground by electric vehicles. Consumers, too, can take a stand by voluntarily offsetting the carbon emissions associated with flying by paying, for instance, to have trees planted.

Yet given the limits of technical and operating fixes, taxes and permit trading remain the only practical ways to curb emissions. Airlines protest that taxes are a blunt instrument with only marginal environmental benefits. The European Commission has not ruled out some taxes but its main proposal is to make airlines join the ETS. The European Commission has said the effect on fares should be no more than an extra €9 ($11.60) on a ticket—which

smacks of tokenism. Given that fuel surcharges of up to £70 ($132) a ticket are not trimming demand at some carriers, it is hard to see how that would make much difference to air travel. Sometimes there is no substitute for taking the plane, and airlines have no substitute for kerosene.

The European plans would, however, make airlines part of the virtuous “cap and trade” system that is supposed to reward industries that can reduce their CO_2 output. Each carrier on a route departing from Europe would be given a CO_2 allowance. Airlines could buy additional quotas needed to sustain their growth, with no net addition to global-warming gases. But enforcement might be difficult, especially with airlines from America—which does not recognise the Kyoto treaty. If American carriers were excluded, however, they would enjoy an unfair advantage over European competitors.

The way the allowances are awarded to airlines would be crucial to the success of any scheme (see article). IATA wants them to be based on historic levels of CO_2 emissions, a practice known as “grandfathering”, since it preserves the status quo favourably for its members. But the young low-cost carriers in Europe, led by easyJet and Ryanair, prefer an auction. Stelios Haji-Ioannou, the founder of easyJet, sees grandfathering as another form of subsidy for the large network carriers. If evidence that the ETS's current design favours incumbents were needed, British Airways' former chief executive, Rod Eddington, argued for extending it to include airlines.

This week IATA said the net loss of the world's airlines in the past six years would amount to almost $44 billion. Carriers have been hit by terrorism, war, recession, the respiratory disease SARS and soaring oil prices. There were hopes the industry could make a small profit in 2007, but having to pay for environmental costs could change that. Yet global warming is not something that airlines, or any other industry, can shake off for ever. Sooner or later, aviation will have to shoulder the burden it imposes on the planet.

Copyright © 2006 The Economist Newspaper and The Economist Group. All rights reserved.

Economist.com BUSINESS
PRINTABLE PAGE VIEW SPONSORED BY
About sponsorship

Emissions trading

Gaming gases

Jun 8th 2006
From The Economist print edition

Why a scheme designed to punish polluters is rewarding them

ALL new policy instruments have teething troubles but the European Emissions Trading Scheme (ETS) has more than its fair share. Designed to discourage the production of greenhouse gases and encourage investment in cleaner forms of energy, it has rewarded polluters rather than penalising them, and failed to boost alternatives.

The ETS was set up in 2005 to cover five industries, and 13,000 factories and plants, rated as particularly dirty. They were given tradable allowances covering their existing emissions; firms wanting to exceed those levels had to buy permission, either by purchasing allowances from other firms, or by buying permits from developing-country companies. Under the Clean Development Mechanism (CDM) established by the Kyoto agreement, developing-country companies which clean up their operations can (once they have approval from the UN) sell EU companies the right to pollute by an equivalent amount.

Three problems have emerged. The first is the consequence of handing allowances free to existing polluters (a process known as “grandfathering”). The polluters pocketed them, passing on the extra cost of production to their consumers. Moreover, once trading took off, the price of allowances rocketed to €30 ($40) a tonne. Developing countries, meanwhile, were selling permits for about half that (because they cannot yet be traded, and are regarded as riskier). So polluters have been cashing in their allowances, buying cheap CDM permits—and keeping the difference. According to a report by IPA Energy Consulting, Britain's power companies alone have profited to the tune of around £800m ($1.5 billion) a year.

The second problem was that when the scheme started there was little information about how much pollution the 13,000 factories were emitting. The original levels claimed by member governments were not much more than guesswork, and not surprisingly were generous. Now that levels are being monitored, it turns out that Europe is not emitting as much as it thought it was. When this emerged last month, the price of carbon allowances crashed.

Third, the current phase of the ETS lasts for only three years. Nobody knows what level of allowances will then be set. Since the payback period for cleaner power-generating technology is at least five years, there is no incentive for producers to invest in cleaner technologies.

None of this suggests that using the market to curb emissions is a bad idea. But if the EU is to create a system for airlines, it should learn from the ETS's teething troubles. The scheme should be based on reliable information, permits should be auctioned not grandfathered, and it should run for long enough to get polluters to change their ways.

Copyright © 2006 The Economist Newspaper and The Economist Group. All rights reserved.

Shares in emerging economies

A nasty spillage

Jun 8th 2006
From The Economist print edition

Emerging economies are in better shape than their stockmarkets

IN HIS 1919 classic, “The Economic Consequences of the Peace”, John Maynard Keynes recalled an era, brought to an end by the first world war, when capital was truly cosmopolitan. “Sipping his morning tea in bed”, the foreign investor could

> adventure his wealth in the natural resources and new enterprises of any quarter of the world, and share, without exertion or even trouble, in their prospective fruits and advantages.

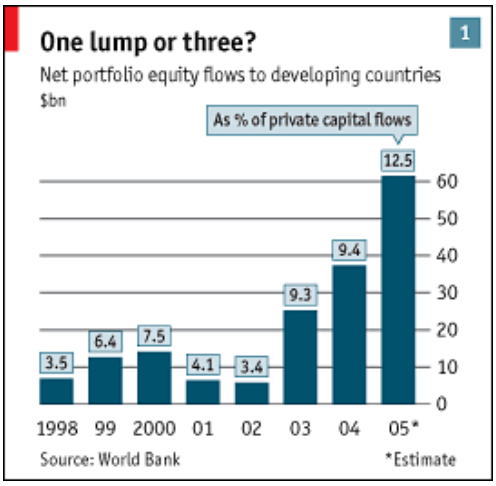
There is nothing quite so evocative in the Global Development Finance report, published late last month by the World Bank. But the numbers it reports are nonetheless reminiscent of the age Keynes fondly described. In 2005 foreigners adventured a net $61.4 billion in emerging-market equities (see chart 1) and a further $237.5 billion in direct investments. At the end of the year, the shares on all exchanges in emerging economies were worth $4.4 trillion, up from $1.7 trillion three years before. Asian markets had tripled in size.

But since the second week of May, a lot of tea has been spilt on the bedcovers. Stockmarkets in the emerging economies have fallen by 16% in dollar terms, according to the MSCI index, with Turkey falling by almost one-third, and Brazil and India falling by about one-fifth (see chart 2). Mutual funds dedicated to emerging markets, which attracted more money in the first four months of this year than in the whole of 2005, said goodbye to $5 billion in the week to May 24th, according to Emerging Portfolio Fund Research, which tracks the flow of capital around the world.

The drama on the Istanbul Stock Exchange reflects an overheated economy. Turkey needs to attract foreign money to finance a national current-account deficit of 6.3% of GDP. Prices rose by 9.9% in the year to May, and the lira fell by 16% against the dollar in the month before an emergency meeting of the central bank on June 7th. At that meeting, interest rates were hoisted by 1.75 percentage points.

But elsewhere, it is difficult to discern what, if anything, the stockmarket sell-off signifies. Inflation in emerging markets is relatively weak (less than 5% on average); growth is strong. Governments are solvent; their creditors are happy to accept low risk-premiums on their bonds. And not many of these countries are reliant on foreign money to finance their investment needs. Indeed, rather than raising doubts about the emerging economies, the stockmarket excesses perhaps raise

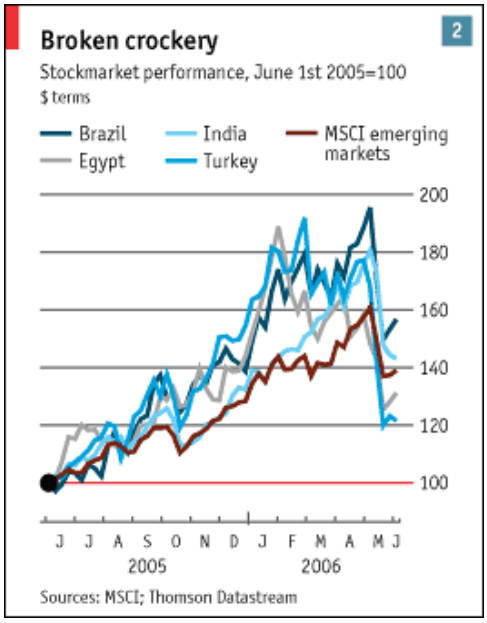
doubts about the markets themselves.



An equitable life

On the face of it, equity is the most natural way for precocious, up-and-coming economies to raise money abroad. By issuing shares, an enterprise can obtain money from foreigners without having to pay them back. In contrast to a loan or bond, a share certificate contains no promises that its issuer may fail to keep. When foreigners lose confidence, their fright results in falling prices, not messy defaults. Indeed, if skittish foreigners cannot find domestic buyers for their shares, a market "correction" can occur without any money leaving the country.

Emerging economies have been strikingly successful in raising equity finance in the form of foreign direct investment, which accounted for almost half of the private capital they imported in 2005. They have also attracted the attentions of private-equity firms in recent years. But their record in wooing portfolio investors, who want to buy shares not companies, has been patchy. Foreign punters flirted with local stockmarkets in the year before the Asian financial crisis, for example, but were then embarrassed by the losses they incurred. As one money manager put it, "We did not go very deep, and we did not stay very long."



What was stopping them? The simple answer is that foreigners have too much money and too little local knowledge or power. They can monitor a multitude of companies less easily than they can a government, hence their preference for sovereign bonds over public equity. And given the amounts of money that foreign fund managers typically handle, only a few companies have tyres big enough to kick.

Moreover, in many emerging economies, the law offers minority investors little protection against corporate insiders who do not have their interests at heart. Breaches of a debt contract are easy to spot and police, but a shareholder's claim can be eroded quite subtly. The chairman of Hyundai, a South Korean conglomerate, is now standing trial on charges that he embezzled $110m from his company.

But things are getting better, according to Simeon Djankov, of the International Finance Corporation (IFC), a division of the World Bank. On July 28th a new securities law will come into effect in Mexico, tightening provisions against corporate self-dealing and toughening the penalties. India's stockmarkets, once described as a "snake-pit", have become a little less venomous in recent years as the Securities and Exchange Board of India, the market regulator, has become more assertive. Egypt, at the urging of the country's tough-minded investment minister, is at last enforcing company laws, some of which have been mouldering on the books for 25 years.

Mr Djankov worries that the indiscriminate sell-off of recent weeks may dishearten reformers. If this is how the markets reward their efforts, why should they bother? If the punters lack discernment, the markets also lack liquidity. With the assets under their command, America's institutional investors could buy all the shares on the emerging world's stockmarkets four times over. On most of these exchanges, the World Bank says, trading is still relatively light: less than 40% of the market turns over in a year, compared with 250% for the NASDAQ. (Trading is much heavier in Turkey, Thailand and India, where turnover ratios exceed 100%.) In Mexico the buying and selling of just eight stocks accounted for almost two-thirds of all trades in 2004.

As a result, the commotion on the national bourses in recent weeks may not serve as a reliable measure of each economy's prospects. More likely, it is simply a sign of the sheer weight of money moving in and out of markets that are still too thin to bear it comfortably. This makes the flow of foreign money "irrelevant at best, extremely dangerous at worst", according to one asset manager.

But Michael Klein, head of the IFC, is optimistic. In the short term, private-equity firms, on the prowl for buying opportunities, may be willing to bet against the pack. And over the long term, as the rich world ages, it will be ever more anxious to share in the fruits and advantages offered by younger workforces in the developing world. It remains to be seen how much trouble and exertion that will involve.

Copyright © 2006 The Economist Newspaper and The Economist Group. All rights reserved.

African stock exchanges

Out in Africa

Jun 8th 2006 | JOHANNESBURG
From The Economist print edition

The Johannesburg stock exchange spreads its wings

DESPITE the recent jitters in world markets, the mood was festive at South Africa's stock exchange on June 5th. As the ticker started rolling, hats flew into the air and horns blew: like exchanges in New York, London and elsewhere, Johannesburg's stock exchange, the JSE, had become a listed company on its own market.

Corporate Communications Consult

Loubser blows his horn

Listing is the latest mark of the past decade's modernisation, which has turned the 119-year-old institution from a cosy club of stockbrokers into a more transparent limited company. The open-outcry trading floor has given way to fully electronic trading. Listing requirements and the trading system are similar to those of the London Stock Exchange. New products such as derivative trading have been introduced. Over 30,000 trades now take place daily, compared with 5,000 a decade ago. Liquidity, measured by the ratio of trading volume to market capitalisation, has risen from 7% to about 40%. The value of listed companies is now 4.2 trillion rand ($650 billion), making the JSE the world's 17th-largest exchange, as well as Africa's biggest. Last year the main share-price index rose by 43%, after 22% in 2004. So far this year, it has risen by 9%.

Progress at the JSE has helped financial markets not only in South Africa, but also in the rest of the continent. The exchange has been offering other African exchanges the use of its technology and has been pushing to harmonise listing requirements with its neighbours in the Southern African Development Community. But the other 14 sub-Saharan African exchanges are wary of their big brother, which accounts for 93% of the region's market capitalisation. Discussions about a pan-African stock exchange have so far gone nowhere; only Namibia's exchange uses the JSE's technology, although Zimbabwe's and Zambia's are also interested; and the JSE's efforts to attract foreign listings have also been viewed with suspicion.

Russell Loubser, the JSE's chief executive, explains that the exchange encourages dual listings, and is not trying to lure companies away from their home exchanges. Last November Oando, a Nigerian energy group listed in Lagos, became the first company from another African country to be listed on the JSE too. Wale Tinubu, Oando's chief executive, explains that the group plans to raise $500m in equity and debt before the end of the year to finance its expansion. This is more than the Nigerian market can provide. A foreign listing has helped boost Oando's credibility with international investors and will give it access to a deeper pool of money. Several other Nigerian companies are now pondering a secondary listing on the Johannesburg exchange.

However, the JSE's ambitions reach beyond Africa. Now that South Africa's capital controls have been relaxed, the exchange is trying to sell itself to companies from as far away as Canada and Australia that have assets in the region. With only 25 foreign companies listed on it so far, it has room to grow.

Copyright © 2006 The Economist Newspaper and The Economist Group. All rights reserved.

Euro-area interest rates

Waving a red flag

Jun 8th 2006
From The Economist print edition

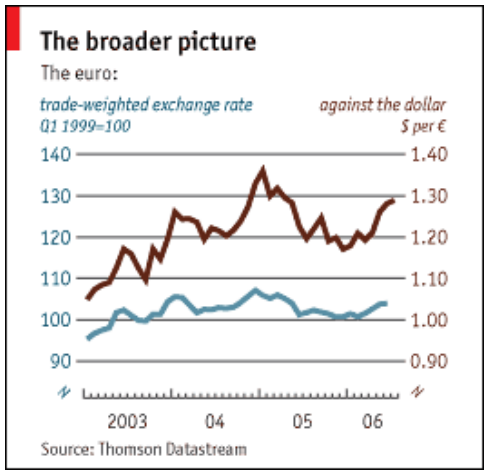
The ECB tightens the euro area's monetary policy by another notch

SPAIN is the home of bullfighting, but on June 8th the inflation matadors had their day in the sun. Meeting in Madrid, instead of Frankfurt as usual, the European Central Bank (ECB) raised interest rates by a quarter of a percentage point, to 2.75%. The increase had been widely foreseen; the only question was by how much. A flurry of statistics suggesting that growth and inflation are picking up by more than expected had caused some economists to ponder a possible half-point rise.

One reason why the ECB may have rejected a bigger rise is the strengthening of the euro (another is the recent fall in share prices). Early this week the euro rose to a 13-month high of almost $1.30, up by 11% since late last year. It is now close to its rate in November 2004, when Jean-Claude Trichet, the ECB's president, described the rise in the currency as “brutal”.

The euro later fell back slightly after comments about inflation from Ben Bernanke, chairman of the Federal Reserve, encouraged markets to expect another rise in American interest rates this month. Even so, the ECB so far seems less concerned about the euro's strength against the dollar than it did in 2004. Exports to Asia have been growing strongly, and the United States accounts for only 7% of the euro area's total exports, or 15% of its external trade. In trade-weighted terms the currency has gained a more modest 3% this year (see chart), equivalent (in terms of its economic impact) to a rise in interest rates of slightly more than a quarter-point. This is a good reason for not lifting rates by half a point, but not enough to prevent any tightening at all.

Another reason for being more relaxed about the exchange rate is that the euro-area economy is looking perkier than for many years. The zone's GDP grew at an annual rate of 2.4% in the first quarter. That may seem unimpressive compared with America's 5.3%, but the important news was the changing composition of growth: consumer spending, which rose at an annual rate of 2.8%, looked healthier than for a good while. Overall growth was held down by sluggish construction, the result of bad weather, but this promises to rebound in the second quarter.



Economists at JPMorgan now think that GDP could grow at a rate of 3% this quarter, and an average of 2.8% in the second half of the year. A recent wave of cheery economic news supports this forecast; indeed, the economy could even surpass it. Business and consumer confidence surveys are roaring ahead.

The durability of the recovery will largely depend on whether firms start hiring again. Here the news is promising. Unemployment has fallen by more than expected in both France and Germany in recent months. Germany's jobless rate has fallen from 11.9% to 11% during the past year, and France's from 10.1% to 9.3%. These rates are still shamefully high, but it is the change in unemployment rather than its level that matters most for shifts in consumer spending. More good news could be in store. Going by the hiring intentions reported in the euro area's purchasing managers' index, JPMorgan's David Mackie reckons that employment is growing at an annualised rate of almost 2%, more than twice as fast as last year, and the fastest since 2001.

New jobs, rising consumer confidence (which is at a five-year high) and, in some countries, surging house prices (see article) should encourage households to open their wallets. Indeed, euro-zone retail sales rose by a faster-than-expected 2.8% in the year to April. Even German consumer spending is picking up, helped by the World Cup.

Stronger growth allows the ECB to focus more intently on its inflation target: namely, holding inflation close to, but below, 2%. The average inflation rate in the euro area rose to 2.5% in May, which was higher than expected, and the European Commission's latest survey showed that inflation expectations are edging up.

The IMF warned the ECB this week against raising interest rates too fast. However, the central bank is right to worry that interest rates are unsustainably low and must now be lifted towards more normal levels. Most estimates

suggest that the euro area's neutral rate of interest (the rate consistent with stable inflation and the economy growing at its full potential rate) is somewhere between 3.5% and 4%. This means that even after the latest rise, monetary policy is still expansionary. Evidence of this can be seen in the rapid expansion of private-sector credit, which is growing at its fastest pace for at least 14 years, according to Lombard Street Research.

Further interest-rate rises are therefore almost certain in the months ahead. Futures markets expect ECB rates to reach 3.75% next year. If the euro climbs more sharply against the dollar, then the ECB'S job will get trickier. For the moment, however, the central bank may not mind a strong currency—as long as its rise is not too “brutal”. Not only will it dampen imported inflation, but it will also help to rebalance GDP growth towards domestic demand. A more confident economy can stand on its own two feet.

Copyright © 2006 The Economist Newspaper and The Economist Group. All rights reserved.

Japan's monetary policy

Situation cloudy

Jun 8th 2006 | TOKYO
From The Economist print edition

The Bank of Japan wants to raise rates, but deciding when gets no easier

WHAT a difference a few days make. In mid-May over half of those economists surveyed by Bloomberg said that the Bank of Japan (BoJ) would soon raise interest rates—zero since 1999 but for one brief and disastrous episode—perhaps at its policy board's next meeting, on June 14th-15th. After all, they reasoned, Japan's economic recovery was gaining a firm footing, inflation (negative for so long) was on the rise, and central bankers were known to be worried that speculative bubbles might form in financial markets. And the BoJ seemed to some to be preparing for an early rate rise. Since declaring the end to its policy of "quantitative easing"—flooding the banking system with free money—in early March, it had been draining the system rapidly.

Yet now a rate increase at next week's meeting would come as a shock, even though the inflation gauge most watched, core consumer prices (that is, not counting fresh food), rose by 0.5% in the 12 months to April, the sixth month running in positive territory. Little has happened that might throw Japan's recovery in doubt: for example, first-quarter GDP grew at a rate of 3.1%, year-on-year, and that figure may later be revised upwards.

What has changed is the global backdrop against which the BoJ has been seeking to raise rates. Since March, the yen's trade-weighted value has risen by 1.7%, largely because the dollar has weakened. (The yen has gained 5% against the greenback, while slipping by 2.3% against the euro.) This amounts, in effect, to a slight tightening of monetary policy. Further, Japan's stockmarket, like others in Asia, has taken a tumble. After falling by 3% on June 8th the Nikkei index closed below 15,000 for the first time since November. When financial markets are skittish, ending the zero interest-rate policy could knock confidence. The BoJ's room for manoeuvre has been suddenly constrained.

Assuming that the central bank leaves rates alone next week, attention will turn to its July meeting. All eyes will be on June's Tankan survey of business conditions, published by the BoJ on July 3rd. If confidence has taken a knock from a stronger yen and lower share prices, says Tetsufumi Yamakawa, of Goldman Sachs, then the central bank's scope will be constrained further. He thinks the central bank will raise rates in mid-August, by a quarter of a percentage point.

However, by then the race within the ruling Liberal Democratic Party to succeed Junichiro Koizumi, party leader and prime minister, in September will be in full swing. BoJ officials dismiss the notion that the policy board would discuss anything so squalid as politics. Still, no central bank makes a contentious move during a political high season if it can help it. In other words, a rate move as late as the autumn even becomes possible.

Meanwhile, the BoJ has the tricky job of managing expectations at a time when it has withdrawn excess liquidity equivalent to a fifth of all base money—an action, some say, probably unfairly, that has contributed to global volatility. Recently, volatility returned to Japan's own short-term money market, dormant for so long. Around the end of quantitative easing in March, the amount of money kept in commercial banks' reserve accounts at the central bank was ¥30 trillion-35 trillion ($260 billion-300 billion), far more than the minimum of roughly ¥6 trillion needed to keep overnight rates at zero. Towards the end of May, liquidity was about ¥12 trillion, still well above the supposed minimum, when overnight call rates suddenly shot up. In one day alone the BoJ had to inject ¥1.5 trillion to hold rates down.

What had happened? Foreign institutions, lacking domestic banks' huge deposits, seemed suddenly to doubt that funding would remain virtually on tap—so they bid up its price. Liquidity risk, in other words, returned. This is quite normal, says the BoJ, but it will take a time for both the central bank and market participants, whose dealing desks have been unmanned for so long, to get used to the idea.

Copyright © 2006 The Economist Newspaper and The Economist Group. All rights reserved.

Hurricanes and insurance

The price of sunshine

Jun 8th 2006
From The Economist print edition

Hit hard by last year's hurricanes, America's property insurers scale back their coverage in coastal regions

SUMMER'S arrival, so eagerly awaited by many, is an ominous time for millions of people living in America's hurricane belt. Forecasters say the 2006 storm season could be as bad as last year's, which was very bad indeed. While thousands of people are still unable to return to their damaged or destroyed homes, those who remain are bracing themselves for the possibility of more rough weather. In fire stations, retirement homes and churches across the region, towns are holding hurricane-preparation “fairs” this weekend.

Reuters

What Katrina did

From Texas to Florida and up the east coast, one of the most difficult problems for property-owners near the sea is insurance. Last year, after an already poor 2004, storms caused a record $54.8 billion of insured losses, according to the Insurance Information Institute, an industry group. Of these, Hurricane Katrina alone accounted for more than $38 billion.

Stung, insurers are cutting back their exposure in coastal areas. Allstate, one of America's biggest property insurers, has stopped writing homeowners' policies in Florida, Louisiana and parts of Texas and New York. State Farm, another big insurer, has not renewed some policies. In April Poe Financial, Florida's fourth-largest personal insurer, collapsed, leaving 316,000 policyholders in need of coverage. A new report by Fitch, a credit-rating agency, calls Florida's insurance market “extremely fragile”. Further north, this month National Grange began telling customers on Cape Cod, in Massachusetts, that it would not renew their policies.

This is bad luck for property-owners, because the federal government's National Oceanic and Atmospheric Administration says that up to 16 tropical storms could form over the Atlantic this year. Up to ten, it thinks, could become hurricanes. William Gray, a meteorologist at Colorado State University, predicts 17 named storms, fewer than last year's 27, but a lot nonetheless. Florida, the Sunshine State, has the highest value of property exposed to hurricanes, followed by New York.

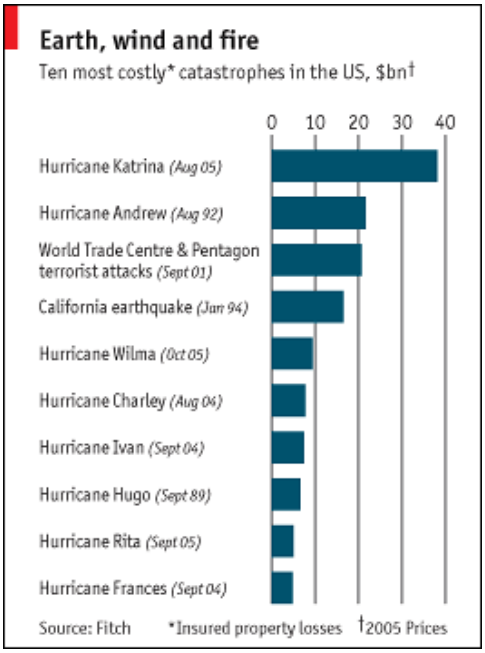
In the face of this threat, homeowners who can get insurance coverage face sharply higher rates. Some premiums have risen by as much as 200%. Primary insurers partly blame increases in the prices charged by reinsurers (which insure them).

Many residents cannot get private coverage at all. As a result, state-backed insurance plans, meant to provide coverage as a last resort, are being inundated. Citizens Property Insurance, a state-run pool in Florida, may end up with over 1m—maybe even 1.5m—policies this year, up from 850,000 at the end of April. Citizens, which had a combined deficit in the past two years of $2.2 billion, is filling its shortfall with rate increases, a tax on residential-property policies with private insurers and other money from the state legislature.

The widespread worry has prompted a debate about who should pay for storm damage in the future. Americans have been migrating towards the coasts for decades, despite the risks. High insurance premiums, or a lack of cover, reflect those risks: in theory, these ought to discourage people from living on the coast. Yet tens of millions of people are still determined to live in such areas, and expect to be covered by the state if private insurers refuse.

Robert Litan, an economist at the Brookings Institution, argues that private insurers are unable to handle losses on the scale inflicted by Katrina. Instead, the federal government bears the burden of disaster relief after great catastrophes. Mr Litan calls for creation of a federal catastrophe-reinsurance programme to provide “backstop insurance” against the biggest losses. He says this would be fairer and more efficient than post-disaster help has been in the past. The trouble is that this would only encourage the migration to the coast.

Hurricanes are not the only reason why the weather is on insurers' minds. Lloyd's, London's big insurance market, issued a sober report on June 5th, arguing that the industry globally must reassess its underwriting, capital and pricing models to reflect climate change or risk “being swept away”. The sorts of catastrophe models Lloyd's is pushing are increasingly used by private insurers to help them determine which risks to cover, and at what price. Fitch notes that in 1992, before such models were widespread, ten insurers went bust as a result of Hurricane Andrew. Last year, despite the worst-ever catastrophe losses of any type (see chart), only three American insurers went out of business.



Even so, those who build the models admit they had underestimated the damage that would ensue from last year's storms. RMS, one of the leading firms in catastrophe modelling, unveiled a completely revised model a few weeks ago. The firm says it thinks big hurricanes may hit America more often in the next five years. It has raised its projections of hurricane losses for Florida, the Gulf of Mexico region and the rest of the south-eastern United States by about 40%.

Primary insurers in America, as well as their global reinsurers, are now running their own numbers through the models to update underwriting policies. None of this is likely to bode well for homeowners in the Sunshine State.

Copyright © 2006 The Economist Newspaper and The Economist Group. All rights reserved.

Hedge funds

Turn on, tune in, meet clients

Jun 8th 2006 | KNEBWORTH
From The Economist print edition

Hedge-fund managers let their hair down, sort of

ANY self-respecting sixties rebel would have cringed at the reference. Woodstock, a counter-culture festival held in 1969, drew about 450,000 hippies, rockers and hangers-on to upstate New York for several days of sex, drugs and rock 'n' roll. This week a few thousand hedge-fund managers and investors gathered at Knebworth, an estate north of London also famed for rock concerts. This was “Hedgestock”, a two-day networking event that tried to evoke a similarly alternative spirit. “Make money, not war,” the lapel badges declared.

How crazy were they? Well, not very—although a discussion on, say, “Multi-strat Versus Fund-of-funds: Strange Bedfellows?” may sound far-out to some. Almost the only tie-dyed shirts to be found were on the event's organisers, although some visitors managed jeans. No one wore a tie—but then hedge-fund managers tend not to wear ties anyway. Several men, alas, sported pinstripes and cufflinks, and there were lots of blazers. Mobile phones and Blackberries were never far from reach.

Despite the lack of a marijuana cloud overhead, the champagne and Pimm's bar was doing steady business before noon. This may have helped explain the upbeat mood and made some of the dents put in many portfolios by May's falling markets seem a little less severe.

The event included contests in everything from polo and poker to cricket and clay-pigeon shooting (with laser guns). More important for most, however, was the competition to talk with big investors. Over 3,000 pre-arranged meetings were held, with heavyweights such as Hermes Pensions Management and the Teacher Retirement System of Texas in demand. So many Americans flew into London this week for the event that immigration officials at Heathrow reportedly knew Hedgestock by name.

Philip Allport

All you need is shedloads

Beyond the networking and a bit of fun, another aim of Hedgestock's organisers was to soften the image of hedge funds. “We know we're not the world's most popular industry, but we like to think our hearts are in the right place—even if we're delusional,” said Simon Ruddick of Albourne Partners, a consultancy, which organised the event. All the event's proceeds went to a charity, the Teenage Cancer Trust, which helped to book the biggest musical draw, The Who. Many in the crowd had not even been born when the now-ageing rockers played at Woodstock.

In the end, although Hedgestock lacked a sixties' counter-cultural vibe, the hedge-fund generation proved to be freer spirits than the more traditional financiers. “These seem to be fun people, not your run-of-the-mill bankers,” said an executive with JPMorgan's treasury, who attended to learn more about alternative investments. Some bankers may be envious of the attention hedge funds are getting, she said, but “we need to pay attention to them—they're a force to be reckoned with.” Rock on.

Copyright © 2006 The Economist Newspaper and The Economist Group. All rights reserved.

Economics focus

News from the home front

Jun 8th 2006
From The Economist print edition

Several housing markets are vulnerable to higher interest rates

***The Economist*'s house-price indicators**
% change

	Latest	Q1 2005	1997-2006*
	on a year earlier		
Denmark	21.3	13.2	92
Belgium	18.0	19.8	102
New Zealand	14.8	13.4	93
France	14.2	15.7	115
Sweden	13.5	8.3	109
Ireland	13.2	7.9	231
United States	12.5	13.2	95
South Africa	12.3	29.1	299
Spain	12.0	15.7	165
Canada	7.7	5.7	57
Italy	7.3	8.5	81
China	5.6	9.8	*na*
Netherlands	5.4	1.6	86
Singapore	4.7	2.0	*na*
Britain	4.6	10.1	176
Australia	3.6	0.1	119
Switzerland	2.4	1.4	16
Germany	-0.8	-1.3†	-1
Hong Kong	-3.2	22.1	-43
Japan	-3.9	-5.4	-31

Sources: ABSA; Bulwien; ESRI; Japan Real Estate Institute; Nationwide; Nomisma; NVM; OFHEO; Quotable Value; Stadim; Swiss National Bank; government offices

*Or 2005 latest †2004

IN MANY economies, zooming house prices have been a powerful motor of growth in the past few years. According to estimates by *The Economist*, the total value of residential property in developed economies has risen by three-quarters since 2000, to almost $75 trillion. The increase is equivalent to more than 100% of those countries' combined national incomes. Countries in which house prices have gone up most have tended to enjoy the strongest growth in consumer spending as homeowners, finding themselves wealthier, have treated themselves. But how much fuel is left in the global housing engine?

The latest quarterly update of *The Economist*'s global house-price indicators shows that most markets remain lively. In the past year prices have risen at double-digit rates in nine of the 20 countries in our table, including six in Europe: Spain, France, Belgium, Sweden, Denmark and Ireland. At the top of the league, Danish property prices are 21% higher than they were a year ago. In about half of the countries that *The Economist* tracks, the pace of home-price inflation has quickened over the past year, most notably in Denmark, Sweden and Ireland. In contrast, the sharpest slowdown has been in Hong Kong where prices have slipped by 3.2%, compared with a jump of 30% in 2004. In Britain, South Africa and China, the rate of house-price inflation has fallen by roughly half during the past year.

The days when Britain and Australia led the global housing boom (with 12-month gains of around 20% in 2003) are long gone. In the past 12 months Britain's property prices have risen by 4.6% and Australia's by only 3.6%. Houses in Sydney fetch 3% less; the prices of apartments have fallen more sharply. However, London's housing market, fuelled by city bonuses, has seen a revival this year, with prices up by around 10% in many areas.

American house prices rose by a surprisingly robust 12.5% in the year to the first quarter, according to the Office of Federal Housing Enterprise Oversight, a regulator thought to publish the most reliable index. Even so, the quarterly rise was the smallest for two years, and other indicators suggest that the market is cooling fast. The National Association of Realtors, the estate agents' trade body, says that the median sales price for existing homes went up by only 4.2% in the year to April, compared with 16.6% in the year to October. Prices have been falling since last summer. And as sales have fallen, the stock of unsold homes has grown fast. A glut of new building is leading developers to cut prices.

Most experts are still predicting a soft landing in most countries, with prices levelling off, but not dropping. Yet with property in many places looking so overvalued, that could imply a long period of falling real prices even if nominal prices stay flat. In its latest *Economic Outlook*, published last month, the OECD says that overvalued housing markets and rising interest rates represent a serious risk to developed economies. It is popularly argued that higher house prices in relation to incomes are justified by lower interest rates, which make buying a home cheaper. But interest rates are now rising. America's 30-year mortgage rate is now at a four-year high of 6.7%, up from 5.5% a year ago. An analysis by the OECD concludes that if prices rise at their 2005 pace during this year and if interest rates rise by two percentage points, then there is a 50% or more risk that real prices will decline in America, France, Ireland, Spain, Sweden, New Zealand and Denmark. The OECD believes that real prices have already topped out in Australia and Britain.

In Europe, Spain and Ireland look particularly exposed to higher rates. Not only have home prices and mortgage debt surged relative to incomes, but most mortgages are at variable interest rates. If these economies' housing markets stumble, they will strain the European Central Bank's "one size fits all" monetary policy, which is set on the basis of economic conditions in the whole of the euro area. Until now this policy has been unduly loose for Spain and Ireland, exacerbating their housing booms. But if house prices fall, they will be unable to cut interest rates to cushion their economies.

House of horrors?

In America, by contrast, many economists reckon that the Federal Reserve would cut interest rates if the housing market weakened significantly. This is one reason why few people expect home prices to fall. It is also commonly argued that house prices are sticky downwards: owners prefer to stay put than to accept a reduced price. It is true that, year on year, average American house prices have not fallen since the Great Depression. However, several local markets have seen declines of more than 10% at some time in the past two decades. In the past, such slumps were not synchronised: some states would remain buoyant as other suffered busts. But this time prices have boomed simultaneously in an unusually large number of states. A slide in prices is thus likely to be more synchronised, too.

American commentators take comfort in the fact that house prices in Britain and Australia have flattened off rather than slumped. However, although these two countries show that prices can stay at dizzy heights for much longer than seemed possible, the story is far from over. Homes remain painfully expensive in relation to incomes; so if inflation remains low, almost a decade of stagnant prices may be needed to return property to fair value. For many homeowners that would feel pretty uncomfortable. The soft landing in prices so far in Britain and Australia has caused a slowdown in consumer spending. In America, where growth has depended even more on the housing market, even a soft landing for property could cause a bumpy one for the whole economy.

Copyright © 2006 The Economist Newspaper and The Economist Group. All rights reserved.

Animal experiments

Testing times

Jun 8th 2006 | LINZ
From The Economist print edition

Researchers are working on ways to reduce the need for animal experiments, but new laws may increase the number of experiments needed

SPL

IN AN ideal world, people would not perform experiments on animals. For the people, they are expensive. For the animals, they are stressful and often painful.

That ideal world, sadly, is still some way away. People need new drugs and vaccines. They want protection from the toxicity of chemicals. The search for basic scientific answers goes on. Indeed, the European Commission is forging ahead with proposals that will increase the number of animal experiments carried out in the European Union, by requiring toxicity tests on every chemical approved for use within the union's borders in the past 25 years.

Already, the commission has identified 140,000 chemicals that have not yet been tested. It wants 30,000 of these to be examined right away, and plans to spend between €4 billion-8 billion ($5 billion-10 billion) doing so. The number of animals used for toxicity testing in Europe will thus, experts reckon, quintuple from just over 1m a year to about 5m, unless they are saved by some dramatic advances in non-animal testing technology. At the moment, roughly 10% of European animal tests are for general toxicity, 35% for basic research, 45% for drugs and vaccines, and the remaining 10% a variety of uses such as diagnosing diseases.

Animal experimentation will therefore be around for some time yet. But the hunt for substitutes continues, and last weekend the Middle European Society for Alternative Methods to Animal Testing met in Linz, Austria, to review progress.

A good place to start finding alternatives for toxicity tests is the liver—the organ responsible for breaking toxic chemicals down into safer molecules that can then be excreted. Two firms, one large and one small, told the meeting how they were using human liver cells removed incidentally during surgery to test various substances for long-term toxic effects.

In vitro veritas?

PrimeCyte, the small firm, grows its cells in cultures over a few weeks and doses them regularly with the substance under investigation. The characteristics of the cells are carefully monitored, to look for changes in their microanatomy.

Pfizer, the big firm, also doses its cultures regularly, but rather than studying individual cells in detail, it counts cell

numbers. If the number of cells in a culture changes after a sample is added, that suggests the chemical in question is bad for the liver.

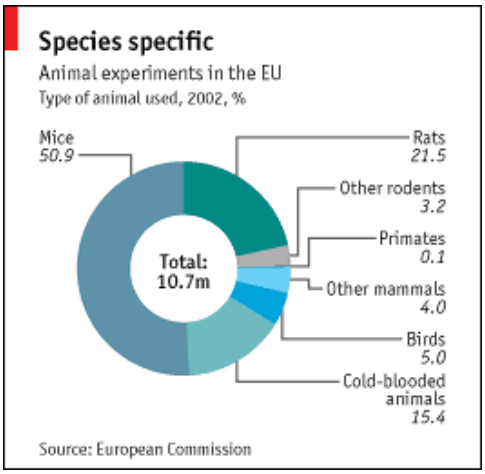
In principle, these techniques could be applied to any chemical. In practice, drugs (and, in the case of PrimeCyte, food supplements) are top of the list. But that might change if the commission has its way: those 140,000 screenings look like a lucrative market, although nobody knows whether the new tests will be ready for use by 2009, when the commission proposes that testing should start.

Other tissues, too, can be tested independently of animals. Epithelix, a small firm in Geneva, has developed an artificial version of the lining of the lungs. According to Huang Song, one of Epithelix's researchers, the firm's cultured cells have similar microanatomy to those found in natural lung linings, and respond in the same way to various chemical messengers. Dr Huang says that they could be used in long-term toxicity tests of airborne chemicals and could also help identify treatments for lung diseases.

The immune system can be mimicked and tested, too. ProBioGen, a company based in Berlin, is developing an artificial human lymph node which, it reckons, could have prevented the near-disastrous consequences of a drug trial held in Britain three months ago, in which (despite the drug having passed animal tests) six men suffered multiple organ failure and nearly died. The drug the men were given made their immune systems hyperactive. Such a response would, the firm's scientists reckon, have been identified by their lymph node, which is made from cells that provoke the immune system into a response. ProBioGen's lymph node could thus work better than animal testing.

Another way of cutting the number of animal experiments would be to change the way that vaccines are tested, according to Coenraad Hendriksen of the Netherlands Vaccine Institute. At the moment, all batches of vaccine are subject to the same battery of tests. Dr Hendriksen argues that this is over-rigorous. When new vaccine cultures are made, belt-and-braces tests obviously need to be applied. But if a batch of vaccine is derived from an existing culture, he suggests that it need be tested only to make sure it is identical to the batch from which it is derived. That would require fewer test animals.

All this suggests that though there is still some way to go before drugs, vaccines and other substances can be tested routinely on cells rather than live animals, useful progress is being made. What is harder to see is how the use of animals might be banished from fundamental research.



Weighing the balance

In basic scientific research, where the object is to understand how, say, the brain works rather than to develop a drug to treat brain disease, the whole animal is often necessarily the object of study. Indeed, in some cases, scientific advances are making animal tests more valuable, rather than less. Genetic-modification techniques mean that mice and rats can be remodelled to make them exhibit illnesses that they would not normally suffer from. Also, genes for human proteins can be added to them, so that animal tests will more closely mimic human responses. This offers the opportunity to understand human diseases better, and to screen treatments before human trials begin. However, the very creation of these mutants counts as an animal experiment in its own right, so the number of experiments is increasing once again.

What is bad news for rodents, though, could be good news for primates. Apes and monkeys belong to the same group of mammals as humans, and are thus seen as the best subjects for certain sorts of experiment. To the extent that rodents can be “humanised”, the number of primate experiments might be reduced.

Some people, of course, would like to see them eliminated altogether, regardless of the effect on useful research. On June 6th the British Union for the Abolition of Vivisection, an animal-rights group, called for the use of primates in research to be banned. For great apes, this has already happened. Britain, Austria, the Netherlands, New Zealand and Sweden have ended experiments on chimpanzees, gorillas, bonobos and orang-utans. Experiments on monkeys, though, are still permitted. And some countries have not banned experiments on apes. In America, for example, about 1,000 chimpanzees a year are used in research.

This is a difficult area. Great apes are man's closest relatives, having parted company from the human family tree only a few million years ago. Hence it can be (and is) argued that they are indispensable for certain sorts of research. On the other hand, a recent study by Andrew Knight and his colleagues at Animal Consultants International, an animal-advocacy group, casts doubt on the claim that apes are used only for work of vital importance to humanity. Important papers tend to get cited as references in subsequent studies, so Mr Knight looked into the number of citations received by 749 scientific papers published as a result of invasive experiments on captive chimpanzees. Half had received not a single citation up to ten years after their original publication.

That is damning. Animal experiments are needed for the advance of medical science, not to mention people's safety. But if scientists are to keep the sympathy of the public, they need to do better than that.

Copyright © 2006 The Economist Newspaper and The Economist Group. All rights reserved.

Evolutionary psychology

Anger management

Jun 8th 2006
From The Economist print edition

To one emotion, men are more sensitive than women

MEN are notoriously insensitive to the emotional world around them. At least, that is the stereotype peddled by a thousand women's magazines. And a study by two researchers at the University of Melbourne, in Australia, confirms that men are, indeed, less sensitive to emotion than women, with one important and suggestive exception. Men are acutely sensitive to the anger of other men.

Mark Williams and Jason Mattingley, whose study has just been published in *Current Biology*, looked at the way a person's sex affects his or her response to emotionally charged facial expressions. People from all cultures agree on what six basic expressions of emotion look like. Whether the face before you is expressing anger, disgust, fear, joy, sadness or surprise seems to be recognised universally—which suggests that the expressions involved are innate, rather than learned.

Dr Williams and Dr Mattingley showed the participants in their study photographs of these emotional expressions in mixed sets of either four or eight. They asked the participants to look for a particular sort of expression, and measured the amount of time it took them to find it. The researchers found, in agreement with previous studies, that both men and women identified angry expressions most quickly. But they also found that anger was more quickly identified on a male face than a female one.

Moreover, most participants could find an angry face just as quickly when it was mixed in a group of eight photographs as when it was part of a group of four. That was in stark contrast to the other five sorts of expression, which took more time to find when they had to be sorted from a larger group. This suggests that something in the brain is attuned to picking out angry expressions, and that it is especially concerned about angry men. Also, this highly tuned ability seems more important to males than females, since the two researchers found that men picked out the angry expressions faster than women did, even though women were usually quicker than men to recognise every other sort of facial expression.

Dr Williams and Dr Mattingley suspect the reason for this is that being able to spot an angry individual quickly has a survival advantage—and, since anger is more likely to turn into lethal violence in men than in women, the ability to spot angry males quickly is particularly valuable.

As to why men are more sensitive to anger than women, it is presumably because they are far more likely to get killed by it. Most murders involve men killing other men—even today the context of homicide is usually a spontaneous dispute over status or sex.

The ability to spot quickly that an alpha male is in a foul mood would thus have great survival value. It would allow the sharp-witted time to choose appeasement, defence or possibly even pre-emptive attack. And, if it is right, this study also confirms a lesson learned by generations of bar-room tough guys and schoolyard bullies: if you want attention, get angry.

Copyright © 2006 The Economist Newspaper and The Economist Group. All rights reserved.

Sasers

A little big noise

Jun 8th 2006
From The Economist print edition

The birth of a new technology?

BACK in 1964 an editorial in *Wireless World* lamented the apparent uselessness of a new technology called “light amplification by the stimulated emission of radiation”. The article agreed heartily with Sir Robert Cockburn, a noted physicist, who had recently suggested that the applications of lasers, as a newly coined acronym for the devices dubbed them, were “somewhat limited”.

Four decades later, lasers are a multibillion-dollar technology, found in everything from supermarket scanners to DVD players—not to mention the fibre-optic cables that have revolutionised telecommunications. But now imaginations are being stretched again, this time by the sonic equivalent of lasers. Sound amplification by the stimulated emission of radiation has been a laboratory curiosity for several years, but a new prototype “saser” could thrust the technology into the limelight. It has just been described in *Physical Review Letters* by Borys Glavin, of the Lashkarev Institute of Semiconductor Physics, in Ukraine, and Anthony Kent, of Nottingham University, in England.

Moviestore

Next time, Mr Bond, I'll use a saser

The coherent beams that sasers produce consist of sound, rather than light, and are composed of packets of sonic vibration called phonons, rather than packets of electromagnetic vibration called photons. In a laser, the photons are produced by excited electrons releasing their energy after colliding with other photons. The result is a beam in which the photons all have the same frequency and also oscillate in step. And as long as an external power source keeps pumping the electrons into an excited state, the laser will continue to shine.

The saser devised and built by Dr Glavin, Dr Kent and their colleagues works similarly. It is constructed from thin layers of semiconductors, an arrangement called a superlattice. This lattice consists of sheets a few atoms thick which serve to trap electrons. The electrons are pumped into an excited state by running an electric current through the lattice. The difference is that instead of using photons to stimulate the release of this energy, the researchers use phonons (in other words they give the lattice a good, though very precise, shaking). Phonons then beget phonons, bouncing back and forth between the layers of the lattice, until eventually they overflow the structure and start to escape in the form of a phonon beam.

The researchers are particularly excited because their saser is the first to combine a simple electrical input with a high-frequency output, so it is cheap to run yet powerful. In addition, superlattices can be made using routine industrial techniques, so the device should be easy to mass-produce. And, unlike Sir Robert, they can even think of applications.

These rely on the fact that the sound emitted has a wavelength in the order of nanometres (billionths of a metre). This is much smaller than, for example, medical ultrasound, which is measured in millimetres. It could therefore be used to take sonograms of things, such as defects in microelectronic circuits, whose dimensions are measured in nanometres. Nanometre sasers might also serve in the trendy field of quantum computing, which aims to exploit the inherent uncertainties of quantum theory to do lots of calculations in parallel. That is because their wavelength is exactly right to “talk” to structures called quantum dots, the tiny crystalline blobs that form the storage elements of one type of quantum computer. Existing lasers small enough to fit on computer chips have difficulty generating photons of the right wavelength.

Beyond that, it is anyone's guess. But perhaps saser physicists don't need to hunt too hard for an application. Looking at the experience of the laser, applications are more likely to be hunting for them.

Copyright © 2006 The Economist Newspaper and The Economist Group. All rights reserved.

Micropalaeontology

Germination

Jun 8th 2006
From The Economist print edition

Biodiversity in the distant past

A microcosm of antiquity

DESPITE making up about half, by weight, of the living things on Earth, bacteria get short shrift in the biodiversity stakes compared with whales, elephants and rain-forest trees. But it was not always thus. Once, before the evolution of plants and animals, bacteria were all there was. And, as a paper in this week's *Nature*, by Abigail Allwood of Macquarie University in Australia and her colleagues, shows, when they had the world to themselves, they made the most of it.

Dr Allwood looked at rock formations called stromatolites. Modern stromatolites form in shallow tidal areas, and are the result of bacteria growing and trapping minerals as they do so. Fossil stromatolites are regarded by some people as evidence of the same thing having gone on billions of years ago. Others, though, question whether fossil stromatolites really are the result of bacterial action, and wonder whether they might be chemical precipitates instead.

Dr Allwood showed that her stromatolites, which are 3.4 billion years old, contain seven different, but regularly recurring patterns ranging from “cuspate swales” to “egg-carton laminites”. She does not believe these could have been formed by chemical action, and interprets them as the remains of individual fossil ecosystems adapted to different sorts of condition—the microorganismal equivalents of rain forests, savannahs and so on. Even in the deep pre-Cambrian, it seems, biodiversity was, well, diverse.

Copyright © 2006 The Economist Newspaper and The Economist Group. All rights reserved.

PRINTABLE PAGE VIEW SPONSORED BY

About sponsorship

Politics in Iran

Shadows of uncertainty

Jun 8th 2006
From The Economist print edition

Iran is difficult to understand because it is often so contradictory, as can be seen from two new books—a political analysis and (see article) a travel memoir

Democracy in Iran: History and the Quest for Liberty
By Ali Gheissari and Vali Nasr

Oxford University Press; 214 pages; $29.95 and £17.99

Buy it at
Amazon.com
Amazon.co.uk

AFP

IF EVER policymakers in Washington, DC, needed a slim, thoughtful account of Iran's experiments with pluralism and democracy, now surely is the time. Ali Gheissari, a historian at the University of San Diego, and Vali Nasr, who teaches political science at the Naval Postgraduate School in Monterey, California, set out to challenge the assumption that modern Iranian history is essentially about the conflict between Iranian regimes and their citizens. In doing so, they implicitly challenge the neoconservative belief that this conflict is approaching a climax. Too pat, say the authors: Iranians' failure to resolve a different tension, involving national ambition and risk, explains why their country's century-long transition to democracy shows no sign of being brought to a conclusion.

The authors argue that ever since 1906, when a coalition of clerical grandees, progressive intellectuals and bazaar traders forced the shah of the time to promulgate Iran's first constitution and establish a parliament, Iranians have

been struggling to accommodate the competing attractions of liberty and the rule of law, on one hand, and stability —often imposed with an iron fist—on the other. From the 1940s until recently, the authors assert, this task was complicated by the ideologies of nationalism, socialism and militant Islamism. All were opposed to monarchical tyranny, but none was very democratic.

The authors show how the constitutional movement of a century ago spawned a frail parliamentary democracy that was further weakened by tribal uprisings, some of them stirred up by foreign powers. The result was popular support—to start with, at least—for the autocratic Shah Reza Pahlavi, who set Iran on a path of centralised development before the Allies toppled him in 1941 for being too close to the Nazis. And so on; cycles of authoritarianism and laxity, feeding from and reacting to each other, characterised the reign of Reza's son and successor, Muhammad Reza, until he fled the Islamic revolutionaries of 1979.

Messrs Gheissari and Nasr cast doubts on the credentials of some iconic figures in Iran's democratic pantheon. Muhammad Mossadegh, for instance, a nationalist prime minister who was famously toppled by the CIA in 1953 and remains a hero for many progressive Iranians, “did not advocate individual rights and liberal democracy as those terms are understood today, although later historical accounts have attributed such advocacy to him.” The authors find that true democrats, in the Western sense, were strongest before and immediately after the revolution; they were swiftly overwhelmed by the supporters of Ayatollah Ruhollah Khomeini.

The Islamic Republic that followed—a “pragmatic authoritarian regime” that has held no fewer than 37 national elections—has further muddied the picture. The authors find that democratic instincts have flourished to a surprising degree in this most ideological and centralised of political systems, while avoiding the trap of pitting Iranian democrats neatly against their rulers. When he was elected president in 1997, Muhammad Khatami, a cleric and a son of the revolution, proposed a strikingly democratic manifesto, full of references to civil society and the rule of law, and promised to improve women's rights.

Mr Khatami was thwarted by his own timidity and by the despotism of the conservative forces ranged against him. But Iranians did not react, as many had anticipated, by turning their backs on the Islamic Republic. The 2005 presidential election was judged to have been “one of the most dynamic and innovative in Iran's history”, even though the ruling clerics set strict limits on who was entitled to run and voters elected Mahmoud Ahmadinejad, an Islamist ideologue who had spoken disdainfully of democracy. And so it has proved; as president, Mr Ahmadinejad has behaved as a populist, not a pluralist.

“A century after the Constitutional Revolution of 1906”, Messrs Gheissari and Nasr conclude, “Iran is still grappling with how to achieve a democratic state.” The ability of outsiders to nudge the country in a hopeful direction remains limited. As this book makes clear, foreign interference has often led to more authoritarianism, and to the ascendancy of Iran's “state-building” tendency over its “democracy-building” one. This is what seems to be happening now. Citing foreign threats, the state is gradually increasing its control over many areas of Iranians' lives. America's pro-democracy efforts may already be having unintended consequences.

Democracy in Iran: History and the Quest for Liberty.
By Ali Gheissari and Vali Nasr.
Oxford University Press; 214 pages; $29.95 and £17.99

Copyright © 2006 The Economist Newspaper and The Economist Group. All rights reserved.

Travelling in Iran

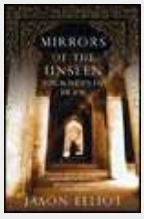
Find what ye seek

Jun 8th 2006
From The Economist print edition

IN THE late 1990s and early 2000s, while Iran was governed by reformists, it gradually opened its doors to tourists. The ruins of Persepolis, Isfahan and the desert city of Yazd all became part of the new grand tour. Some 20 years after the Islamic revolution drove a wedge between Iran and the world, these and other treasures became accessible to those foreigners who were prepared to forgo alcohol and, in the case of women, don Islamic garb. Now, once again, politics is spoiling things. Put off by the sabre-rattling of Iranian and American politicians, tourists are cancelling bookings; Iran, for its part, is issuing fewer visas. An armchair and "Mirrors of the Unseen" may be the next best thing.

The author of a well-received book about Afghanistan, Iran's cultural sibling, Jason Elliot is well qualified to comment on Iranian customs, history and art. He speaks more than a smattering of Persian, is unafraid to stay in insalubrious hotels and has read enough about Iranian culture to make him a stimulating guide to its architectural and intellectual achievements. His prose can be purplish, but then Mr Elliot is an unabashed romantic; from the Iranians he meets, and the places he visits, he evokes an inexorable—and, ultimately, problematic—longing for the past.

Mirrors of the Unseen: Journeys in Iran
By Jason Elliot



Picador; 432 pages; £16.99. To be published in America by St Martin's Press in October

Buy it at
Amazon.co.uk

"Mirrors of the Unseen" opens inTehran, Iran's "harried" modern capital. Thereafter, Mr Elliot devotes much attention to Isfahan, the 17th-century seat of the Safavid empire, the lush northern province of Mazandaran (where he is welcomed by Louise Firouz, an American horse-breeder who stayed on after the revolution) the mountains of Kurdistan and much else besides. He befriends many Iranians, but feels less sympathy for the Islamic Republic in which they live.

Mr Elliot can be as opinionated as his hero Robert Byron, author of "The Road to Oxiana", one of the finest 20th-century travel books. But Byron conducted his Iranian journey in a bubble of aesthetic introspection. His love was for architecture, and his depiction of contemporary Iran was restricted to burlesque asides on functionaries and servants. Unlike Byron, Mr Elliot tries to understand the links between Iran's past and present, but his chosen guide, nostalgia, is an unreliable one.

Mr Elliot finds modern Iranian buildings "unworthy of a great people", but modern Iranians, in his depiction, do not appear particularly great. Those of whom he disapproves are cynical and venal; those he likes are merely cynical. The latter guzzle bootleg whisky, disparage women in chadors as "crows" and energetically curse the memory of Ayatollah Ruhollah Khomeini, the revolution's founder. They do not have a life; they have a "plight".

As a Western traveller, Mr Elliot may not have had access to those millions of Iranians who live relatively closed lives, stubbornly revere the Ayatollah, do not drink and regard the chador as the only sensible garment for women. Less forgivably, he does not seem to have sought out those intellectually nimble Iranians who negotiate the competing demands of tradition and modernity with verve and imagination. Mr Elliot seems to have come to Iran in search of a fallen civilisation, and this is what his mirror showed him.

Mirrors of the Unseen: Journeys in Iran.
By Jason Elliot.
Picador; 432 pages; £16.99. To be published in America by St Martin's Press in October

Copyright © 2006 The Economist Newspaper and The Economist Group. All rights reserved.

The future of Europe

Down with Westphalia

Jun 8th 2006
From The Economist print edition

SCEPTICS and enthusiasts for the European Union are united in one thing: they do not like muddle. The Europhobes want to boil the union down to a free-trade zone. The Europhiles want it to turn into a federal state. But Jan Zielonka, an Oxford-based political scientist, thinks this is a false choice. His new book suggests that Europe should adopt a "neo-medieval" way of looking at itself. It should have soft borders rather than hard ones, multiple overlapping structures rather than neat tidy ones.

That would have seemed very familiar to the continent's inhabitants in the centuries before democracy, capitalism and nation-states. Mr Zielonka believes that modern market economies too can co-exist and co-operate in a neo-medieval framework. Some will have the same currency, some may share military alliances, others will co-operate in law enforcement, but there will be no one single model, because there cannot be.

Mr Zielonka was born in Poland, and his polemical book is shaped by the idea that the eastward enlargement of the EU is not only unstoppable (not just Turkey but Ukraine too), but has changed forever the ordered world of the old EU. The new union is too big and too inchoate to act like a state, now or ever. Instead of "fortress Europe", he argues, there will be "maze Europe".

Europe as Empire: The Nature of the Enlarged European Union
By Jan Zielonka

Oxford University Press; 304 pages; $74 and £45

Buy it at
Amazon.com
Amazon.co.uk

Muddle and incoherence are a hard sell. Jacques Delors, the brainy, spiky French president of the European Commission from 1985 to 1995, rudely referred to EU as an "unidentified political object". Mr Zielonka may be right in his attack on the wishful thinking of federalist commentators who long to discern state-like features in the EU's evolution.

His shorthand for such thinking is "Westphalian". The treaty signed in that German province in 1648 broke the Holy Roman Empire—which was neither holy, nor Roman, nor an empire, but the kind of fuzzy political entity that Mr Zielonka likes. In its place, the treaty created a Europe of nation-states, which survived for the next three centuries.

Mr Zielonka thinks that the Westphalian model is out of date and impractical. He has a point. But it is hard to see his ingenious neo-medieval model working smoothly. Fuzzy, overlapping political authorities are easy prey for powerful lobbies, especially protectionist ones. The EU's most Westphalian features are also its most vital ones: the commissioners who try to keep the internal market operating freely, and who try to unscramble cartels and allow cross-border mergers. That hints at a missing ingredient. Mr Zielonka's model would work more smoothly if there were an outside guarantor of free trade and competition, especially if perceived to have divine authority. A medieval empire with a free-market papacy? Perhaps Brussels is worth a mass.

Europe as Empire: The Nature of the Enlarged European Union.
By Jan Zielonka.
Oxford University Press; 304 pages; $74 and £45

Copyright © 2006 The Economist Newspaper and The Economist Group. All rights reserved.

New fiction

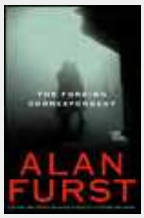
Don't shoot the messenger

Jun 8th 2006
From The Economist print edition

LIVING today in a Europe of stable democracies and open borders, it is increasingly difficult to imagine an era when two men in Berlin and Moscow duelled for control of the continent, and the night-time knock on the door might mean a last goodbye.

Historians have produced libraries full of works on Europe's slide into tyranny in the 1930s, but it takes a master novelist to bring that dark era alive on a human scale. “The Foreign Correspondent” is Alan Furst's ninth book. Its themes are those which Mr Furst has made his own: loyalty and betrayal, the intrigue of intelligence services and the power of ideas to change, if not the world, at least people's lives. His characters are not quite hapless innocents thrown into the maelstrom of Communism, fascism and Nazism; nor are they professionals at home in that perilous world. Rather, like Carlo Weisz, the hero of “The Foreign Correspondent”, they are skilled amateurs. And in Europe then that was a dangerous thing to be.

The Foreign Correspondent
By Alan Furst



Random House; 288 pages; $24.95. To be published in Britain by Weidenfeld & Nicolson in November

Buy it at Amazon.com

After forays to the Balkans and Turkey in some of his earlier works, Mr Furst returns here to his favourite location: Paris, that most teasing and engaging of settings. Weisz is half-Italian, half-Slav, an anti-fascist, involved with a clandestine opposition group that is being pursued by Mussolini's secret police. A journalist at the Paris bureau of Reuters, Weisz proves, as one might expect of a man born in Trieste, to be an engaging mix of Mittel-European subtlety and Latin passion.

Mr Furst excels at period atmosphere, which he conjures up, not with a litany of facts absorbed and reproduced, but with light touches that suggest the broader scene. His characters are wonderfully human: complex and ambiguous, fearful and determined, but people, who, when need be, can gather their courage and do what needs to be done. Mr Furst is a subtle, economical writer who knows precisely when to stop a sentence.

As Weisz is drawn deeper into the intrigues of the British Secret Service, “The Foreign Correspondent” is at times reminiscent of Mr Furst's masterpiece “Dark Star”, whose hero, André Szara, a Soviet journalist posted to Paris, is forced to work for the NKVD, the Soviet intelligence agency. Szara even makes a cameo appearance in “The Foreign Correspondent”, at a dinner party at the Brasserie Heininger, where the head waiter was famously murdered in the women's toilets.

The restaurant pops up in most of Mr Furst's works set in Paris, as do several of his favourite characters. Here once again, quaffing champagne, are Lady Angela Hope, the British Mata Hari, her feet always questing under the table; Count Janos Polanyi, the super-suave Hungarian spymaster, and other old friends. Critics may decry their reappearance as a kind of recycling, but aficionados will find their presence curiously comforting. Enjoy this book as a piece of time travel back to the 1930s—and be glad too that if someone knocks unexpectedly on the door, it is probably just the postman.

The Foreign Correspondent.
By Alan Furst.
Random House; 288 pages; $24.95. To be published in Britain by Weidenfeld & Nicolson in November

Copyright © 2006 The Economist Newspaper and The Economist Group. All rights reserved.

English heroines

Hail Mary

Jun 8th 2006
From The Economist print edition

MARY WESLEY loved geese. They waddle through her books, honking irascibly. In her own life her favourite goose, Pansy, liked to sit on Wesley's lap, twining its neck around hers and making affectionate noises. Her first novel, “Jumping the Queue”, features a gander called Gus who is in love with the heroine, Matilda. Geese are one of many parallels between Wesley's own life and those of her characters.

In his biography, Patrick Marnham establishes his theme at the outset. Not only is it the story of Wesley's life, it also unravels the subtle overlap between that life and the themes and events in her books. There is the real Mary—cryptic and secretive—and the fictional Mary who flits between the pages of her ten novels. But the Mary her readers love best was a creature of their own wishful thinking; beautiful, aristocratic, racy, married to a titled bore to whom she was romantically unfaithful in the search for her one true love.

Wild Mary: The Life of Mary Wesley
By Patrick Marnham

Chatto & Windus; 289 pages; £18.99

Buy it at Amazon.co.uk

In fact, Mary Wesley despised the almost feudal manners and mores of the English upper class, with its emphasis on “old money” and “good blood”, and flouted them all. Marriage, the birth of a legitimate heir and the second world war provided the sexual liberation she craved: a chance to sleep with any man she fancied—which meant quite a few, since men responded eagerly to her erotic magnetism. Mr Marnham describes those heady and dangerous years vividly. Under cover of war work, air raids and the dizzy search for pleasure—licensed by everyone's sense that “tomorrow we die”—Mary spent night after night dancing at the Savoy Hotel, the 400 Club or the Ritz with a succession of uniformed and besotted young men. Many years afterwards she wrote: “I was ‘wild', if that is the right word for it, for about four years, but I was not happy...I was to feel guilty and unhappy for several years with a variety of lovers, each of them transient.”

Sex before death

All this has already been well documented in wartime diaries, memoirs and fiction. But Mary Wesley pursued her sexual adventures for the next 40 years, until she was in her 70s, despite her “good” marriage, two sons, a divorce, another marriage (not “good” at all, but happy), and another son. This second union, to Eric Siepmann, an Englishman of German and Jewish descent who was loathed by her family for being “foreign”, finally put an end to Wesley's long promiscuity.

All this is rich material for her biographer. Mr Marnham frankly admits that although, in the last nine months of her life, she disclosed a great deal, he suspects that Wesley withheld many secrets. Privacy was an obsession with her. Mr Marnham lists some of her lovers—Peter Hope, Norman Pearson, John Montagu-Pollock, John Platts-Mills, Heinz Ziegler, Raymond Lee, Robert d'Alsace—but there were plenty more, ending with Robert Bolt, an English playwright and dramatist, when she was in her late 60s and a widow. The list is as detailed as Wesley allowed, but almost all of them remain shadowy figures.

“Wild Mary” is at its best when documenting two destructive melodramas, both initiated by women. The first was Phyllis Siepmann who, when her husband left her for Mary, responded with an obsessive campaign for vengeance. The story of her efforts to get Eric back nearly destroyed all three, but in the end the marriage was dissolved. He and Mary were together for more than 20 hard, but devoted, years.

Siepmann died in 1970, leaving Mary grief-stricken, alone and almost penniless. Their last years together were blighted by her sister Susan who, supported by her husband, embarked on a long and unscrupulous legal battle to deny Mary her share of the family trust. In the end they failed. By the time “Jumping the Queue” was accepted, she was half-starved, destitute and nearly 70.

Wesley might have aroused passionate desire in men but she could also provoke extreme venom in women. She was not a great writer, yet her books sold in the hundreds of thousands and earned her—finally—millions of

pounds. The same readers will be drawn to this thorough and attractive biography, though many will be shocked by its revelations and the affairs that continued into her old age. Most, though, will be delighted by the Mary Wesley it reveals—brave, caustic, boldly sexual and careless of convention. She ordered her coffin to be finished in red Chinese lacquer and used it as a coffee table before it became her final bed. Mary Wesley died in 2002 at the age of 90; rich and perhaps even content at last.

Wild Mary: The Life of Mary Wesley.
By Patrick Marnham.
Chatto & Windus; 289 pages; £18.99

Copyright © 2006 The Economist Newspaper and The Economist Group. All rights reserved.

New theatre

African exuberance

Jun 8th 2006
From The Economist print edition

At 81, Peter Brook turns to Africa to keep himself young

IN LATE 1973, the 48-year-old Peter Brook, famous for the most radical staging ever of Shakespeare's “A Midsummer Night's Dream”, saw two plays by a South African writer, Athol Fugard. In the first, “The Island”, two black political prisoners act out a version of Sophocles' “Antigone”. In the second, “Sizwe Banzi is Dead”, which is also a two-hander, an illiterate township dweller named Sizwe seeks career advice—a change of identity—from a self-made photographer, Styles.

Black humour

Mr Brook was bowled over by the productions at London's Royal Court Theatre. He was then Britain's most feted director, even though he had left England for Paris in 1970. There, he had begun an experimental quest, testing all traditional theatrical boundaries, which has lasted to this day. Mr Fugard was South Africa's leading anti-apartheid playwright. Each had much to teach the other. “Those performances”, said Mr Brook, shortly after his new production of “Sizwe Banzi” opened recently, in French, at Lausanne's Théâtre Vidy, “were the most extraordinary nights I've spent in a theatre.”

Two township actors, John Kani and Winston Ntshona—permitted to leave South Africa only after they had been registered, in their passbooks, as Mr Fugard's domestic servants—moved, mimed and swayed their bodies in a way rarely seen in British theatre. Messrs Kani and Ntshona displayed, remembers Mr Brook, “all the physical freedom and simplicity I had been looking for throughout the 1960s”.

It also deepened his fascination with Africa, which had begun a year earlier. In 1972, he undertook with various actors (including the then 28-year-old Helen Mirren) a research tour of Algeria, Niger, Nigeria and Mali. They were looking for vital signs of life—“life” is a word Mr Brook uses both frequently and unapologetically when discussing theatre—which he felt were missing in regular performances of the text-based Western canon.

Even today, says Mr Brook, Africa remains the “ultimately developing country”, displaying “all the finesse and contradictions of clan and family, which can end in disharmony, or, sometimes, harmony”. Many of the actors at Mr Brook's Paris theatre, the Bouffes du Nord, are originally from Francophone Africa. His last exploration of African themes was beautifully laid out two years ago in a play called “Tierno Bokar” about a Malian Islamic mystic.

While the Bouffes is being renovated, meanwhile, Mr Brook opened “Sizwe Banzi” in a production of supreme economy in Lausanne. Three cardboard screens on wheels stand centre stage. Either side are two cardboard flats, the assemblage framed by four lamps—the photographer Styles's makeshift studio.

The play's first half is a monologue. Styles tells the audience how he serves his people by selling them, in photos, the only concrete mementoes of their existence. Sizwe enters. The two men conduct a kind of dance as Sizwe persuades Styles to help him adopt the identity of a dead man, so that he can gain employment in the neighbouring big city.

Habib Dembélé, a Malian actor, plays Styles with thrilling grace, moving in and out of the voices of workers and customers with a speed and lightness that would inspire any stand-up comedian. His partner, Pitcho Womba Konga, a Congolese actor who started out as a rapper, is by turns mournful and energised as he painfully, then gleefully, divests himself of “Sizwe”.

There are no frills here, just precisely calibrated, often comic interaction both between the two actors and between actors and audience. Punctuated by the mid-20th-century sounds of the Manhattan Brothers and Hugh Masekela, a trumpeter, the show evokes a South Africa that is arguably long gone. But in its brutal structure of white power and black penury, apartheid also contained visceral drama, stories of humanity willing and waiting to break out in a demotic exuberance which in his township work Mr Fugard caught so well.

For more than 30 years Mr Brook has sought out unadorned narratives for theatre, and he remains deeply attracted to these plays. Yet, over a decade after apartheid has disappeared, does “Sizwe Banzi” have anything to impart about the here and now? “It is about a fundamental lack of respect for the African. It was there in the first Europeans who settled in South Africa. It is still there. When people ask me why I don't look at contemporary events, I answer, ‘You don't need me.' Look at the quantity of films, documentaries, news reports—on Uganda, Côte d'Ivoire, Rwanda. I want to examine and somehow dramatise the unspoken, the invisible, the hidden pain: the other reality of Africa.”

“Sizwe Banzi est Mort” is currently playing at the Rebecca Crown Hall in Jerusalem. It will then tour to Avignon, Stockholm, Gothenburg, Zagreb, Belgrade, Dublin, Prague, Spain (Madrid, Girona, Terassa, Reus) and Italy (Rome, Milan). It will open at the Bouffes du Nord, Paris, on November 30th, and will travel to London's Barbican Centre in May 2007.

Copyright © 2006 The Economist Newspaper and The Economist Group. All rights reserved.

PRINTABLE PAGE VIEW SPONSORED BY

About sponsorship

Nozipho Bhengu

Jun 8th 2006
From The Economist print edition

Duma Pewa/The Witness

Nozipho Bhengu, victim of AIDS and quackery, died on May 19th, aged 32

Get article background

AT THE dinner held last June to celebrate the budget speech of the health minister of KwaZulu-Natal, one guest stood out. Among the politicians crammed into the premier's house in Parkside, Pietermaritzburg, celebrating the first increase in health funding for seven years, was a young woman in a stunning red dress and two rows of black and white beads. Her straightened hair had been streaked with blonde highlights, and her skin glowed.

This picture of health was Nozipho Bhengu, and she had full-blown AIDS. For the past two years she had been campaigning round the townships and clinics of the region, hoping to remove the stigma from the disease and to assure victims they could get help. The help she meant, however, was not better distribution of antiretroviral drugs (ARVs) but a different, homelier treatment. As a young, scared AIDS patient herself, she had been influenced by Manto Tshabalala-Msimang, South Africa's health minister, to think that ARVs were toxic and not particularly useful. A better way to deal with HIV (if it caused AIDS at all, and was not just some invention of racist Western minds) was with supplements and proper food.

The secret of Miss Bhengu's success was a strange, pinkish mush that she made up each day in a liquidiser. First garlic, two cloves of it, and ginger, to treat infections. Then lemon juice and peel, to detoxify the body and fortify the liver. Beetroot for the blood. A cup of Pronutro cereal, for selenium. Paw-paw and watermelon for vitamins and to improve the taste. Occasionally carrots, spinach and yogurt. And then a good shot of Africa's Solution, a brew of plant extracts that came in a bottle with a green, black and yellow label, the colours of the ruling African National Congress, and promised “a positive life”. This concoction, she believed, had made her well.

Miss Bhengu's efforts to treat her illness had been public property since 2001, when her mother, an ANC legislator, had talked about her in a speech to Parliament. Nozipho was that rare thing, a young middle-class woman whose illness had been openly admitted. (How much worse it would have been for her, her mother said, if she had been in some “informal settlement”, without a warm blanket to cover her, or soap to wash her clothes and body.) She became a symbol of the universality of a disease that affects 6.5m South Africans, one in five adults, and kills around 900 a day. But, even more so, she became a symbol of the confusion over how AIDS ought to be treated.

She had been diagnosed HIV-positive in 1998 and taken to hospital in 2003, by that time with galloping AIDS. Her liver was inflamed, and there was a growth on her spleen; her CD4 count, a measure of immunity, was 55, against the normal measure of 600. It seemed she would die, but she was almost as terrified of the drugs the doctors wanted her to take. She dreaded the side-effects of ARVs, the headache and nausea and skin rashes; for a week she tried them, but her body could not cope. At that point, “Manto” came to see her and recommended—as she had done for several other politicians' relations—a change of course. As she put it, reassuringly, “I do not know of any side effects of eating proper food.”

In the realm of dreams

The new diet was provided by a former colleague of the health minister's, Tine van der Maas, who had briefly been a nurse and had then become a self-taught nutritionist. Her presence, too, reassured Miss Bhengu: a big middle-aged Dutch woman, flopping about barefoot in casual shirts and trousers, confident that her diet could cure diabetes, arthritis and cancer, as well as AIDS. Miss van der Maas insisted that her patients should do exercises, crying “Up! Up!” in her strong Dutch accent as they weakly raised their arms; but the medicine she brought was no more scary than bulging bags of vegetables. After three months, Miss Bhengu's CD4 count was up to 135. Delightedly, she told interviewers she was “the scientific proof” that the diet worked.

She knew that the Treatment Action Campaign (TAC), the main pressure group for a proper antiretroviral programme, dismissed the diet as quackery. For a while, before she was ill, she had attended their meetings. But her illness, combined with political pressure, changed her mind. She entered the realm of hope and anecdotes, where AIDS sufferers trusted to live longer by swigging from bottles of Ubhejane, or African potato extract, the recipe for which had been imparted to a truck-driver in a dream; or where Jacob Zuma, former deputy president of the ANC, hoped after sex with an HIV-positive woman to wash off infection in the shower.

At Miss Bhengu's funeral on May 24th the arguments raged on. Manto was invited, but had another engagement. Her stand-in was booed off the podium for mocking Mr Zuma's shower. The TAC announced that had Miss Bhengu taken drugs, she would have lived longer. Her parents defended her “democratic right” to opt for lemons and garlic. Not long before, the head of health for KwaZulu-Natal announced that he might start trials of the diet in the region's hospitals.

When she died, Miss Bhengu was writing a book called “From Victim to Victor”. She had just two chapters to go.

Copyright © 2006 The Economist Newspaper and The Economist Group. All rights reserved.

Overview

Jun 8th 2006
From The Economist print edition

The **American jobs market** may be weaker than it had appeared. Businesses (excluding farms) added just 75,000 workers to the payrolls in May, many fewer than expected. In addition, revised figures for earlier months suggested that payroll employment was 37,000 lower than had been reported. Unit labour costs (again, excluding farming) are also more subdued than first estimates suggested. They fell by 0.6% in the fourth quarter of 2005, rather than rising by 3%. In the first quarter, they increased by 1.6%, not 2.5%.

America's **house prices** increased by 2% in the first quarter, according to the Office of Federal Housing Enterprise Oversight, leaving them 12.5% higher than a year earlier.

In the **euro area** retail sales grew by 2.8% in the year to April, after falling by 0.1% in the year to March. A monthly survey of managers in 2,000 services firms also showed the sector in buoyant mood. The purchasing-managers' index reached 58.7 in May, its highest reading since 2000.

Australia's GDP grew at an annual rate of 3.5% in the first quarter, thanks to robust household spending and business investment.

Sweden's economy did even better, expanding at an annual pace of 4.6% in the first quarter, its fastest rate of growth for almost six years.

Copyright © 2006 The Economist Newspaper and The Economist Group. All rights reserved.

Output, demand and jobs

Jun 8th 2006
From The Economist print edition

% change on year ago

	GDP latest		GDP qtr*	The Economist poll GDP forecasts 2006	2007	Industrial production latest		Retail sales (volume) latest		Unemployment % rate latest		year ago
Australia	+ 3.1	Q1	+ 3.5	+ 3.2	+ 3.4	+ 0.6	Q4	+ 2.7	Q1	4.9	May	5.1
Austria	+ 2.8	Q1	+ 2.0	+ 2.2	+ 1.9	+ 5.5	Mar	+ 2.4	Feb	4.8	May	5.1
Belgium	+ 2.2	Q1	+ 3.2	+ 2.3	+ 1.9	+ 7.1	Mar	– 0.8	Mar	12.1	Apr†	12.3
Britain	+ 2.2	Q1	+ 2.3	+ 2.4	+ 2.5	– 1.0	Apr	+ 3.0	Apr	5.2	Mar‡	4.7
Canada	+ 3.2	Q1	+ 3.8	+ 3.1	+ 2.8	+ 2.1	Mar	+ 3.0	Feb	6.4	Apr	6.8
Denmark	+ 3.3	Q4	– 0.1	+ 2.7	+ 2.2	+ 7.1	Mar	+ 2.1	Apr	4.8	Mar	6.0
France	+ 1.5	Q1	+ 2.2	+ 2.0	+ 1.9	+ 1.9	Mar	+ 2.4	Apr	9.3	Apr	10.1
Germany	+ 1.4	Q1	+ 1.6	+ 1.8	+ 1.2	+ 3.9	Mar	– 1.0	Apr	11.0	May§	11.9
Italy	+ 1.5	Q1	+ 2.4	+ 1.3	+ 1.1	+ 4.2	Mar	– 3.2	Mar	7.7	Dec	7.9
Japan	+ 3.1	Q1	+ 1.9	+ 2.9	+ 2.4	+ 3.8	Apr	– 0.2	Feb	4.1	Apr	4.4
Netherlands	+ 2.9	Q1	+ 0.7	+ 2.4	+ 2.0	+ 2.3	Mar	+ 4.0	Mar	5.7	Apr††	6.7
Spain	+ 3.5	Q1	+ 3.3	+ 3.2	+ 2.8	– 9.6	Apr	nil	Apr	8.3	Apr	9.5
Sweden	+ 4.1	Q1	+ 4.6	+ 3.4	+ 2.8	+ 0.4	Mar	+12.5	Apr	5.5	Apr†	5.8
Switzerland	+ 3.5	Q1	+ 3.8	+ 2.4	+ 1.7	+ 3.9	Q4	+ 0.7	Mar	3.3	May†	3.7
United States	+ 3.6	Q1	+ 5.3	+ 3.4	+ 2.8	+ 4.7	Apr	+ 4.6	Apr	4.6	May	5.1
Euro area	+ 1.9	Q1	+ 2.4	+ 2.1	+ 1.7	+ 3.8	Mar	+ 2.8	Apr	8.0	Apr	8.7
MORE COUNTRIES	Data for the countries below are not provided in printed editions of *The Economist*											
Finland	+ 2.8	Q1	+ 1.6	na	na	+ 5.9	Apr	+ 6.2	Mar	7.5	Apr	8.6
Greece	+ 4.1	Q1	na	na	na	+ 1.7	Mar	+ 6.0	Mar	9.7	Q4	10.4
Iceland	+ 3.6	Q4	na	na	na	na		na		1.6	Feb†	2.8
Ireland	+ 5.7	Q4	+ 7.6	na	na	+ 1.8	Mar	+ 5.3	Mar	4.5	Apr	4.3
Luxembourg	+ 5.7	Q4	na	na	na	+ 6.3	Feb	+ 9.7	Apr	4.3	Apr	4.2
New Zealand	+ 1.9	Q4	nil	na	na	– 2.9	Q4	+ 3.0	Q1	3.9	Q1	3.9
Norway	+ 5.4	Q1	+ 2.3	na	na	+ 1.6	Mar	– 1.2	Apr	4.0	Apr**	4.8
Portugal	+ 0.7	Q4	+ 0.4	na	na	– 1.7	Apr	+ 0.7	Apr	7.7	Q1†	7.5

*% change on previous quarter at an annual rate. †Not seasonally adjusted. ‡Jan-Mar; claimant count rate 3.0% in Apr. §EU harmonised rate 8.2% in Apr. ††Feb-Apr. **Feb-Apr.

Copyright © 2006 The Economist Newspaper and The Economist Group. All rights reserved.

Prices and wages

Jun 8th 2006
From The Economist print edition

% change on year ago

	Consumer prices			The Economist poll consumer prices forecast		Producer prices			Wages/earnings		
	latest		year ago	2006	2007	latest		year ago	latest		year ago
Australia	+ 3.0	Q1	+ 2.4	+ 2.9	+ 2.7	+ 7.9	Q1	+ 6.0	+ 4.0	Q1	+ 4.5
Austria	+ 1.8	Apr	+ 2.6	+ 1.8	+ 1.8	+ 3.7	May	+ 1.3	+ 2.7	Apr	+ 2.2
Belgium	+ 2.2	May	+ 2.5	+ 2.0	+ 1.8	+ 4.1	Mar	+ 3.8	+ 2.2	Jan	+ 2.3
Britain	+ 2.0	Apr*	+ 1.9	+ 2.0	+ 1.9	+ 2.4	Apr	+ 3.3	+ 4.2	Mar†	+ 4.5
Canada	+ 2.4	Apr	+ 2.4	+ 2.3	+ 2.2	+ 2.2	Apr	+ 1.6	+ 0.2	Mar	+ 3.6
Denmark	+ 1.8	Apr	+ 1.8	+ 2.0	+ 2.0	+ 5.0	Apr	+ 3.8	+ 2.9	Q4	+ 2.9
France	+ 1.7	Apr	+ 1.8	+ 1.8	+ 1.5	+ 3.6	Apr	+ 3.3	+ 3.3	Q1	+ 2.9
Germany	+ 1.9	May	+ 1.7	+ 1.7	+ 2.3	+ 3.2	Apr	+ 3.2	+ 0.3	Mar	+ 1.5
Italy	+ 2.2	May	+ 1.9	+ 2.1	+ 1.8	+ 5.5	Apr	+ 4.4	+ 2.7	Apr	+ 3.5
Japan	+ 0.4	Apr	nil	+ 0.5	+ 0.6	+ 2.5	Apr	+ 1.9	+ 1.3	Apr	+ 0.8
Netherlands	+ 1.3	May	+ 1.3	+ 1.5	+ 1.5	+ 5.5	Apr	+ 5.2	+ 1.9	May	+ 0.4
Spain	+ 4.1	May	+ 3.1	+ 3.5	+ 2.9	+ 5.7	Apr	+ 5.0	+ 2.5	Q4	+ 2.7
Sweden	+ 1.5	Apr	+ 0.3	+ 1.3	+ 1.8	+ 4.7	Apr	+ 2.7	+ 1.7	Mar	+ 4.2
Switzerland	+ 1.4	May	+ 1.1	+ 1.2	+ 1.2	+ 1.9	Apr	+ 1.3	+ 1.0	2005	+ 0.9
United States	+ 3.5	Apr	+ 3.5	+ 3.3	+ 2.4	+ 4.0	Apr	+ 4.8	+ 3.7	May	+ 2.6
Euro area	+ 2.5	May	+ 2.0	+ 2.1	+ 2.0	+ 5.4	Apr	+ 4.3	+ 2.4	Q4	+ 2.4
MORE COUNTRIES	Data for the countries below are not provided in printed editions of *The Economist*										
Finland	+ 1.3	Apr	+ 1.2	na	na	+ 6.1	Apr	+ 3.1	+ 3.4	Q1	+ 4.0
Greece	+ 3.3	Apr	+ 3.4	na	na	+ 7.9	Apr	+ 4.4	na		na
Iceland	+ 7.6	May	+ 2.9	na	na	+ 6.9	May	+ 4.5	+ 8.4	Apr	+ 6.7
Ireland	+ 3.8	Apr	+ 2.2	na	na	+ 1.7	Apr	– 1.8	+ 3.8	Q4	+ 4.6
Luxembourg	+ 2.9	Apr	+ 2.5	na	na	+ 4.1	Mar	+15.2	+ 5.6	Feb	+ 0.4
New Zealand	+ 3.3	Q1	+ 2.8	na	na	+ 7.2	Q1	+ 4.2	+ 3.3	Q1	+ 2.5
Norway	+ 2.7	Apr	+ 1.3	na	na	+20.6	Apr	+17.5	+ 3.6	Q1	+ 4.2
Portugal	+ 2.9	Apr	+ 2.1	na	na	+ 4.8	Apr	+ 4.4	+ 1.1	Mar	– 3.9

*RPI inflation rate 2.6% in Apr. †Jan-Mar.

Copyright © 2006 The Economist Newspaper and The Economist Group. All rights reserved.

Economic forecasts

Jun 8th 2006
From The Economist print edition

June averages (previous month's, if changed)

	Real GDP, % change Low/high range		Real GDP, % change average		Consumer prices % increase		Current account % of GDP	
	2006	2007	2006	2007	2006	2007	2006	2007
Australia	2.9/3.7	2.7/3.8	3.2	3.4	2.9	2.7	-5.6	-5.0 (-5.1)
Austria	2.0/2.4	1.5/2.2	2.2	1.9	1.8	1.8	0.1	0.1
Belgium	2.0/2.6	1.6/2.2	2.3 (2.2)	1.9	2.0 (2.1)	1.8	2.0	2.0 (2.1)
Britain	2.1/2.8	2.1/2.9	2.4	2.5	2.0	1.9	-2.7 (-2.6)	-2.7 (-2.6)
Canada	2.8/3.4	2.6/3.1	3.1	2.8	2.3 (2.2)	2.2 (2.1)	2.2 (2.3)	1.5 (1.7)
Denmark	2.3/3.3	1.7/3.1	2.7 (2.8)	2.2	2.0 (1.9)	2.0 (1.9)	2.5	2.3
France	1.8/2.3	1.6/2.4	2.0	1.9 (2.0)	1.8	1.5	-1.8	-1.4 (-1.6)
Germany	1.5/2.2	0.3/2.0	1.8	1.2	1.7 (1.6)	2.3	3.8	4.0
Italy	0.9/1.6	0.6/1.6	1.3 (1.2)	1.1	2.1	1.8	-1.6	-1.5
Japan	2.5/3.4	1.8/3.5	2.9 (3.0)	2.4	0.5 (0.4)	0.6	3.6 (3.7)	3.4 (3.5)
Netherlands	1.7/3.1	1.4/2.9	2.4 (2.5)	2.0	1.5	1.5	5.8 (5.7)	5.7
Spain	2.9/3.5	2.5/3.1	3.2	2.8	3.5	2.9	-7.3 (-7.0)	-7.4 (-6.9)
Sweden	2.9/4.1	2.5/3.1	3.4	2.8	1.3 (1.2)	1.8	6.5 (6.4)	6.2 (6.0)
Switzerland	2.0/3.2	1.1/2.3	2.4 (2.3)	1.7 (1.8)	1.2 (1.1)	1.2	13.0 (13.1)	12.3 (12.4)
United States	3.1/3.7	2.4/3.3	3.4	2.8	3.3 (3.1)	2.4	-6.9 (-6.8)	-6.9 (-6.7)
Euro area	1.8/2.4	1.3/2.4	2.1	1.7	2.1 (2.0)	2.0	-0.3	-0.2 (-0.1)

Sources: ABN AMRO, Deutsche Bank, Economist Intelligence Unit, Goldman Sachs, HSBC Securities, KBC Bank, JPMorgan Chase, Morgan Stanley, Decision Economics, BNP Paribas, Royal Bank of Canada, Citigroup, Scotiabank, UBS

Every month *The Economist* surveys a group of forecasters and calculates the average of their predictions for economic growth, inflation and current-account balances in 15 countries and the euro area. The table also shows the highest and lowest projections for growth. The previous month's figures, where they are different, are shown in brackets. The panel has raised its inflation forecasts for several countries in 2006. It expects American consumer prices to rise by 3.3%, up from 3.1% in May. It thinks that inflation will be 2.1% in the euro area, compared with 2.0% a month ago. The panel has raised its projections for America's current-account deficit to 6.9% of GDP for both 2006 and 2007. It is predicting that Japan will grow by 2.9% in 2006, compared with 3.0% in May; and it has raised this year's forecast of Japanese inflation to 0.5% from 0.4%.

Copyright © 2006 The Economist Newspaper and The Economist Group. All rights reserved.

Money and interest rates

Jun 8th 2006
From The Economist print edition

	Money supply* % change on year ago			Interest rates % p.a. (Jun 7th 2006)					
				3-mth money market		2-year gov't bonds	10-year gov't bonds		corporate bonds
	narrow	broad		latest	year ago		latest	year ago	
Australia	+ 9.5	+10.4	Apr	5.90	5.67	5.60	5.64	5.07	6.67
Britain	+ 7.5	+13.1	Apr	4.67	4.81	4.71	4.62	4.21	na
Canada	+ 8.7	+ 5.8	Apr	4.14	2.43	4.13	4.36	3.88	5.60
Denmark	+12.8	+10.5	Apr	2.95	2.15	3.55	4.00	3.06	5.24
Japan	+ 4.4	+ 1.4	May	0.20	0.02	0.82	1.89	1.21	2.00
Sweden	+ 0.4	+11.9	Apr	2.20	1.71	3.05	3.91	3.02	3.87
Switzerland	+ 3.1	+ 4.6	Apr	1.46	0.75	2.02	2.69	1.89	2.60
United States	+ 1.9	+ 4.9	Apr‡	5.11	3.25	5.01	5.02	3.94	5.98
Euro area†	+ 9.8	+ 8.8	Apr	2.97	2.11	3.42	3.96	3.09	4.50

*Narrow: M1 except Britain and Sweden M0, broad: M2 or M3 except Britain M4. †Germany for bonds. ‡New series for broad money supply. Benchmarks: US 30-year 5.08%, Japan No. 280 1.87%. Central bank rates: US fed funds 5.00%, ECB refinancing 2.50%, BOJ overnight call 0.001%, BOE repo 4.5%. Sources:Bank of Canada, Commerzbank, Danske Bank, Global Insight, JPMorgan Chase, Stockholmsbörsen, UBS, Westpac, Thomson Datastream. Rates cannot be construed as banks' offers.

Copyright © 2006 The Economist Newspaper and The Economist Group. All rights reserved.

The Economist commodity price index

Jun 8th 2006
From The Economist print edition

2000=100

	May 30th	Jun 6th*	% change on one month	% change on one year
Dollar index				
All items	181.9	173.8	– 2.4	+ 28.4
Food	137.8	134.8	– 1.9	+ 3.3
Industrials				
All	238.9	224.3	– 2.8	+ 58.2
Nfa†	162.9	162.1	+ 5.9	+ 24.6
Metals	280.3	258.2	– 5.5	+ 74.3
Sterling index				
All items	146.3	141.7	– 2.3	+ 26.3
Euro index				
All items	130.5	125.4	– 2.6	+ 22.9
Yen index				
All items	188.9	183.1	+ 0.1	+ 36.6
Gold				
$ per oz	661.25	626.50	–10.0	+ 47.3
West Texas Intermediate				
$ per barrel	71.90	72.44	+ 2.7	+ 34.7

*Provisional. †Non-food agriculturals.

Copyright © 2006 The Economist Newspaper and The Economist Group. All rights reserved.

Stockmarkets

Jun 8th 2006
From The Economist print edition

Market indices

		2006		% change on one week	% change on record high	% change on Dec 30th 2005 in local currency	% change on Dec 30th 2005 in $ terms
	Jun 7th	high	low				
Australia (All Ordinaries)	4,991.9	5,318.2	4,708.8	+ 0.4	– 6.1	+ 6.0	+ 7.0
Austria (ATX)	3,669.0	4,344.4	3,559.0	– 2.0	– 15.5	+ 0.1	+ 8.4
Belgium (Bel 20)	3,585.7	3,987.3	3,562.8	– 2.5	– 10.1	+ 1.0	+ 9.4
Britain (FTSE 100)	5,706.3	6,132.7	5,532.7	– 0.3	– 17.7	+ 1.6	+ 9.7
Canada (Toronto Composite)	11,475.4	12,487.3	11,272.3	– 2.3	– 8.1	+ 1.8	+ 6.9
Denmark (OMXCB)	348.3	395.5	345.8	– 1.5	– 11.9	– 5.3	+ 2.6
France (SBF 250)	3,398.7	3,755.6	3,327.6	– 2.1	– 22.6	+ 3.0	+11.5
France (CAC 40)	4,824.8	5,312.2	4,748.3	– 2.1	– 30.3	+ 2.3	+10.8
Germany (DAX)*	5,543.9	6,140.7	5,334.3	– 2.6	– 31.3	+ 2.5	+11.0
Italy (S&P/MIB)	36,121.0	38,765.0	35,264.0	– 0.9	– 27.9	+ 1.2	+ 9.6
Japan (Nikkei 225)	15,096.0	17,563.4	15,096.0	– 2.4	– 61.2	– 6.3	– 2.7
Japan (Topix)	1,533.5	1,783.7	1,533.5	– 2.9	– 46.8	– 7.0	– 3.5
Netherlands (AEX)	432.1	478.0	427.9	– 1.9	– 38.4	– 1.1	+ 7.1
Spain (Madrid SE)	1,221.2	1,318.5	1,156.8	– 1.0	– 7.4	+ 5.6	+14.4
Sweden (Affarsvarlden Gen)	294.0	333.7	281.5	– 1.4	– 26.6	+ 0.2	+10.6
Switzerland (Swiss Market)	7,549.8	8,122.1	7,430.2	– 0.7	– 10.2	– 0.5	+ 7.3
United States (DJIA)	10,930.9	11,642.7	10,667.4	– 2.1	– 6.8	+ 2.0	+ 2.0
United States (S&P 500)	1,256.2	1,325.8	1,248.3	– 1.1	– 17.8	+ 0.6	+ 0.6
United States (NASDAQ Comp)	2,151.8	2,370.9	2,151.8	– 1.2	– 57.4	– 2.4	– 2.4
Europe (FTSEurofirst 300)†	1,289.1	1,405.6	1,271.5	– 1.3	– 24.4	+ 1.1	+ 9.5
Euro area (FTSE Euro 100)†	1,095.4	1,198.7	1,078.9	– 1.9	– 29.4	+ 0.6	+ 8.9
World (MSCI)‡	1,298.1	1,406.3	1,259.1	– 1.8	– 10.4	+ 3.2	+ 3.2
World bond market (Citigroup)††	639.7	648.4	612.1	– 0.7	– 4.0	+ 3.1	+ 3.1

*Total return index. †In euro terms. ‡Morgan Stanley Capital International index includes individual markets listed above plus eight others, in $ terms. ††Citigroup World Government Bond Index, total return, in $ terms.

Copyright © 2006 The Economist Newspaper and The Economist Group. All rights reserved.

Trade, exchange rates and budgets

Jun 8th 2006
From The Economist print edition

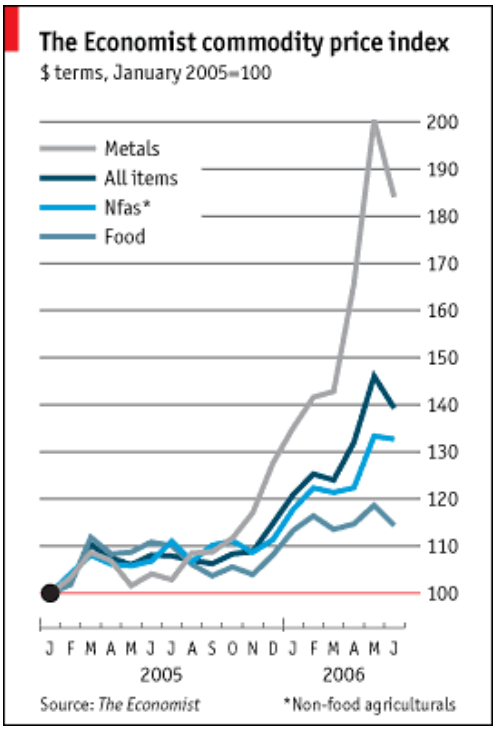
	Trade balance*, $bn latest 12 months		Current-account balance $bn latest 12 mths		The Economist poll % of GDP, forecast 2006	2007	Exchange rate trade-weighted† 2000=100 Jun 7th	year ago	Currency units per $ Jun 7th	year ago	per £	per euro	per ¥100	Budget balance % of GDP 2005‡
Australia	− 11.7	Apr	− 40.6	Q1	− 5.6	− 5.0	114.5	116.7	1.35	1.30	2.50	1.73	1.19	+ 1.5
Austria	− 1.2	Mar	+ 0.5	Dec	+ 0.1	+ 0.1	105.3§	105.7	0.78	0.81	1.45	–	0.69	− 1.6
Belgium	+ 11.1	Mar	+ 6.6	Dec	+ 2.0	+ 2.0	107.1§	107.6	0.78	0.81	1.45	–	0.69	− 0.1
Britain	−123.0	Mar	− 57.4	Q4	− 2.7	− 2.7	99.9	101.1	0.54	0.54	–	0.69	0.47	− 3.2
Canada	+ 59.7	Mar	+ 31.8	Q1	+ 2.2	+ 1.5	129.3	115.6	1.11	1.25	2.06	1.42	0.98	+ 1.7
Denmark	+ 8.9	Mar	+ 6.1	Mar	+ 2.5	+ 2.3	106.3	105.5	5.84	6.04	10.8	7.46	5.14	+ 4.0
France	− 28.8	Mar	− 43.6	Mar	− 1.8	− 1.4	107.9§	108.5	0.78	0.81	1.45	–	0.69	− 2.9
Germany	+191.5	Mar	+108.4	Mar	+ 3.8	+ 4.0	109.4§	110.1	0.78	0.81	1.45	–	0.69	− 3.3
Italy	− 17.6	Mar	− 28.5	Mar	− 1.6	− 1.5	107.5§	108.0	0.78	0.81	1.45	–	0.69	− 4.3
Japan	+ 84.7	Mar	+166.7	Mar	+ 3.6	+ 3.4	82.4	89.0	114	107	211	145	–	− 5.2
Netherlands	+ 39.5	Mar	+ 42.3	Q1	+ 5.8	+ 5.7	108.0§	108.4	0.78	0.81	1.45	–	0.69	− 0.3
Spain	− 99.9	Mar	− 85.6	Feb	− 7.3	− 7.4	105.6§	105.9	0.78	0.81	1.45	–	0.69	+ 1.1
Sweden	+ 20.0	Apr	+ 23.2	Q1	+ 6.5	+ 6.2	98.4	97.5	7.21	7.45	13.4	9.21	6.35	+ 2.7
Switzerland	+ 7.9	Apr	+ 50.2	Q4	+13.0	+12.3	106.7	107.4	1.22	1.24	2.27	1.56	1.08	− 0.5
United States	−806.1	Mar	−804.9	Q4	− 6.9	− 6.9	82.8	84.6	–	–	1.85	1.28	0.88	− 3.8
Euro area	+ 6.7	Mar	− 44.7	Mar	− 0.3	− 0.2	118.7	114.9	0.78	0.81	1.45	–	0.69	− 2.4
MORE COUNTRIES	Data for the countries below are not provided in printed editions of *The Economist*													
Finland	+ 9.4	Mar	+ 3.8	Mar	na	na	108.7§	109.2	0.78	0.81	1.45	–	0.69	+ 2.4
Greece	− 36.4	Mar	− 21.4	Mar	na	na	104.7§	104.9	0.78	0.81	1.45	–	0.69	− 4.4
Iceland	− 1.8	Apr	− 2.6	Q4	na	na	101.8**	101.3	73.3	63.9	136	93.6	64.5	+ 3.2
Ireland	+ 38.1	Mar	− 3.9	Q4	na	na	113.1§	114.0	0.78	0.81	1.45	–	0.69	+ 1.0
Luxembourg	− 4.9	Mar	+ 3.6	Q4	na	na	107.1§	107.6	0.78	0.81	1.45	–	0.69	− 1.9
New Zealand	− 4.8	Apr	− 9.6	Q4	na	na	122.1	137.8	1.60	1.40	2.97	2.04	1.41	+ 5.8
Norway	+ 52.2	Apr	+ 50.2	Q1	na	na	112.6	109.7	6.11	6.42	11.3	7.81	5.38	+ 15.8
Portugal	− 23.1	Feb	− 17.0	Mar	na	na	105.1**	106.1	0.78	0.81	1.45	–	0.69	− 6.0

*Merchandise. Australia, Britain, France, Canada, Japan and United States imports fob, exports fob. All others cif/fob. †Bank of England except §IMF, April average. ‡OECD estimate. **IMF, February average.

Copyright © 2006 The Economist Newspaper and The Economist Group. All rights reserved.

The Economist commodity price index

Jun 8th 2006
From The Economist print edition



Copyright © 2006 The Economist Newspaper and The Economist Group. All rights reserved.

Overview

Jun 8th 2006
From The Economist print edition

South Korea raised its key interest rate by a quarter of a percentage point to 4.25%, its highest in three years.

Inflation is slowing in **Argentina**. Consumer prices rose by 0.5% in May, much less than analysts expected.

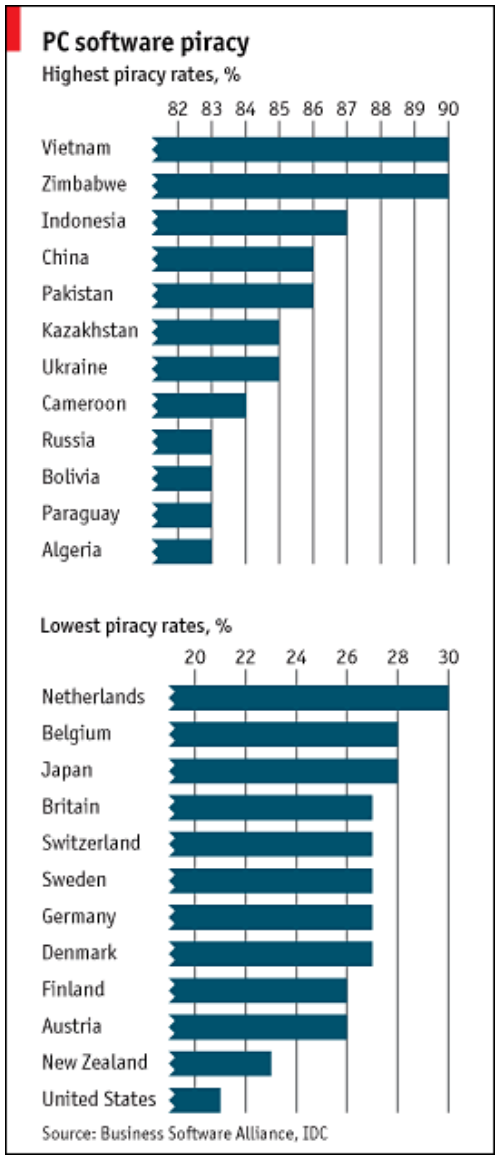
Turkey raised its key interest rate by 1.75 percentage points as consumer-price inflation surged to 9.9% in the year to May.

Copyright © 2006 The Economist Newspaper and The Economist Group. All rights reserved.

PC software piracy

Jun 8th 2006
From The Economist print edition

As much as 35% of software on personal computers worldwide is pirated, according to the Business Software Alliance, a trade association, and IDC, a market-research firm. Piracy is most prevalent in Zimbabwe and Vietnam, where bootlegs outnumber licensed copies nine to one. Although the worldwide rate of piracy remained unchanged from the year before, it fell a little in 51 of the 97 countries investigated, most notably in China and Russia. The groups claim that piracy cost software firms $34 billion in 2005. However, they count every counterfeit copy as a lost sale.



Copyright © 2006 The Economist Newspaper and The Economist Group. All rights reserved.

Economy

Jun 8th 2006
From The Economist print edition

	% change on year ago						Latest 12 months, $bn				Foreign reserves* $bn, latest	
	GDP		Industrial production		Consumer prices		Trade balance		Current account			
China	+10.2	Q1	+16.6	Apr	+ 1.2	Apr	+114.1	Apr	+160.8	2005	875.1	Mar
Hong Kong	+ 8.2	Q1	+ 5.9	Q4	+ 1.9	Apr	−12.4	Apr	+20.3	Q4	126.5	May
India	+ 9.3	Q1	+ 7.7	Mar	+ 5.0	Apr	−39.7	Apr	−13.3	Q4	153.6	Apr
Indonesia	+ 4.6	Q1	+ 0.2	Mar	+15.6	May	+31.6	Apr	+ 3.0	Q4	38.3	Mar
Malaysia	+ 5.3	Q1	+ 4.7	Apr	+ 4.6	Apr	+26.4	Apr	+19.9	Q4	75.2	Apr
Pakistan	+ 8.4	2005†	+19.3	Sep	+ 6.2	Apr	−10.7	Apr	− 4.8	Q1	11.5	Apr
Philippines	+ 5.5	Q1	− 6.6	Mar	+ 6.9	May	− 3.6	Mar	+ 2.4	Dec	18.1	May
Singapore	+10.6	Q1	+ 3.0	Apr	+ 1.1	Apr	+33.2	Apr	+36.1	Q1	127.9	Apr
South Korea	+ 6.1	Q1	+ 9.5	Apr	+ 2.4	May	+18.7	May	+ 9.0	Apr	224.7	May
Taiwan	+ 4.9	Q1	+ 5.5	Apr	+ 1.6	May	+10.1	May	+18.1	Q1	260.9	May
Thailand	+ 6.0	Q1	+ 7.2	Apr	+ 6.2	May	− 4.7	Apr	+ 0.4	Apr	55.5	Apr
Argentina	+ 9.1	Q4	+ 4.9	Apr	+11.5	May	+10.2	Apr	+ 5.4	Q4	20.5	Mar
Brazil	+ 3.4	Q1	− 1.9	Apr	+ 4.6	Apr	+44.6	May	+12.8	Apr	56.9	Apr
Chile	+ 5.1	Q1	+ 0.9	Apr	+ 3.7	May	+14.2	May	+ 0.8	Q1	17.4	May
Colombia	+ 5.4	Q1	+12.6	Mar	+ 4.0	May	+ 1.4	Feb	− 1.9	Q4	14.9	Apr
Mexico	+ 5.5	Q1	+ 9.7	Mar	+ 3.2	Apr	− 3.7	Apr	− 1.2	Q1	78.4	Apr
Peru	+10.7	Mar	+ 9.8	Mar	+ 2.2	May	+ 5.2	Mar	+ 0.7	Q1	13.4	Mar
Venezuela	+ 9.4	Q1	+ 8.7	Feb	+10.4	May	+34.8	Q1	+28.1	Q1	23.7	Apr
Egypt	+ 5.9	Q1	+ 4.0	2005†	+ 3.7	Mar	−11.1	Q4	+ 2.2	Q4	22.0	Apr
Israel	+ 5.2	Q1	+ 6.6	Mar	+ 3.8	Apr	− 8.7	Apr	+ 2.4	Q4	28.0	Apr
Saudi Arabia	+ 6.2	2005‡	na		+ 2.5	Mar	+134.3	2005	+90.7	2005	24.0	Apr
South Africa	+ 4.0	Q1	+ 0.1	Apr	+ 3.3	Apr	− 5.5	Apr	−10.1	Q4	21.5	May
Czech Republic	+ 6.9	Q4	+17.9	Mar	+ 3.1	May	+ 1.7	Apr	− 2.6	Q4	30.8	May
Hungary	+ 4.5	Q1	+ 6.8	Apr	+ 2.3	Apr	− 3.4	Mar	− 8.0	Q4	20.5	Apr
Poland	+ 5.2	Q1	+10.2	Apr	+ 0.7	Apr	− 2.6	Mar	− 4.2	Mar	43.3	Apr
Russia	+ 7.9	Q4	+ 4.8	Apr	+ 9.5	May	+129.9	Mar	+92.0	Q1	239.3	May
Turkey	+ 9.5	Q4	+ 7.1	Apr	+ 9.9	May	−47.5	Apr	−25.5	Mar	59.8	Apr
MORE COUNTRIES	Data for the countries below are not provided in printed editions of *The Economist*											
Estonia	+11.6	Q1	+ 5.5	Apr	+ 4.3	Apr	− 2.6	Mar	− 1.6	Mar	1.9	Mar
Latvia	+10.5	Q4	+ 9.9	Mar	+ 6.1	Apr	− 3.2	Mar	− 2.1	Mar	2.5	Mar
Lithuania	+ 8.1	Q1	na		+ 3.5	Apr	− 4.0	Mar	− 2.0	Mar	3.9	Mar
Slovakia	+ 6.3	Q1	+15.3	Mar	+ 4.5	Apr	− 2.8	Mar	− 4.5	Feb	15.9	Feb
Slovenia	+ 5.1	Q4	+ 9.9	Mar	+ 3.2	May	− 1.7	Mar	− 0.4	Mar	8.3	Feb

*Excluding gold, except Singapore and China; IMF definition. †Year ending June. ‡Economist Intelligence Unit estimate.

Sources: National statistics offices, central banks and stock exchanges; Thomson Datastream; Reuters; WM/Reuters; Hong Kong Monetary Authority; Centre for Monitoring Indian Economy; Bank Leumi le-Israel; Standard Bank Group

Copyright © 2006 The Economist Newspaper and The Economist Group. All rights reserved.

Financial markets

Jun 8th 2006
From The Economist print edition

	Currency units			Interest rates	Stockmarkets	% change on		
	per $		per £	short-term	Jun 7th		Dec 30th 2005	
	Jun 7th	year ago	Jun 7th	% a year		one week	in local currency	in $ terms
China	8.02	8.28	14.9	2.30	1,670.3	– 3.1	+ 36.8	+ 37.7
Hong Kong	7.76	7.78	14.4	4.60	15,816.6	– 0.3	+ 6.3	+ 6.2
India	45.8	43.5	85.0	5.72	9,756.8	– 6.2	+ 3.8	+ 2.0
Indonesia	9,373	9,583	17,385	13.04	1,287.2	– 3.2	+ 10.7	+ 16.2
Malaysia	3.66	3.80	6.78	3.93	923.6	– 0.5	+ 2.6	+ 6.1
Pakistan	60.1	59.7	111	9.28	10,202.4	+4.1	+ 6.8	+ 6.2
Philippines	52.9	54.7	98.2	8.00	2,218.4	– 3.4	+ 5.8	+ 6.1
Singapore	1.59	1.66	2.94	3.44	2,355.4	– 1.2	+ 0.3	+ 5.3
South Korea	948	1,006	1,759	4.36	1,266.8	– 3.9	– 8.2	– 2.1
Taiwan	32.2	31.3	59.7	1.70	6,612.7	– 3.4	+ 1.0	+ 3.0
Thailand	38.3	40.5	71.1	5.35	688.2	– 3.0	– 3.6	+ 3.2
Argentina	3.08	2.89	5.71	9.81	1,619.3	– 2.1	+ 4.9	+ 3.1
Brazil	2.26	2.44	4.20	15.17	35,264.0	– 3.5	+ 5.4	+ 8.7
Chile	543	590	1,007	5.04	9,779.9	– 1.4	+ 6.2	+ 0.2
Colombia	2,484	2,348	4,607	6.07	8,214.2	– 9.2	– 13.7	– 20.5
Mexico	11.3	10.9	21.0	7.01	18,413.4	– 1.4	+ 3.4	– 2.9
Peru	3.27	3.25	6.06	4.49	7,758.6	+7.6	+ 61.6	+ 69.7
Venezuela	2,571§	2,614§	4,769	10.07	30,635.7	+1.2	+ 50.2	+ 51.1
Egypt	5.76	5.80	10.68	8.68	48,817.7	+3.1	– 11.8	– 12.1
Israel	4.47	4.41	8.29	5.43	852.7	– 1.9	+ 3.0	+ 6.1
Saudi Arabia	3.75	3.75	6.96	4.85	11,408.1	+1.8	– 31.7	– 31.7
South Africa	6.47	6.68	12.0	7.15	19,690.8	– 4.3	+ 8.8	+ 6.7
Czech Republic	22.1	24.4	40.9	2.09	1,300.8	– 2.1	– 11.7	– 1.4
Hungary	205	203	381	6.11	20,854.5	– 1.8	+ 0.3	+ 4.6
Poland	3.09	3.29	5.74	4.15	40,226.3	+1.5	+ 13.0	+ 18.9
Russia	26.8	28.4	49.8	12.00	1,431.4‡	– 2.0	+ 18.8	+ 27.2
Turkey	1.56	1.36	2.90	16.51	36,709.6	– 3.7	– 7.7	– 20.1
EM (MSCI)*	1.00	1.00	1.85	na	726.3	– 3.3	+ 2.8	+ 2.8
EMBI+†	1.00	1.00	1.85	na	368.4	+0.7	– 0.1	– 0.1

*Emerging Mkts. †JPMorgan Chase's Emerging Mkts Bond Index Plus. ‡In $ terms. §Floating exchange rate.

Sources: National statistics offices, central banks and stock exchanges; Thomson Datastream; Reuters; WM/Reuters; Hong Kong Monetary Authority; Centre for Monitoring Indian Economy; Bank Leumi le-Israel; Standard Bank Group

Copyright © 2006 The Economist Newspaper and The Economist Group. All rights reserved.